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Broome Community College
Binghamton, New York 13902

BROOME COMMUNITY COLLEGE

**CATALOG
1972-73**

ACCREDITATION

Broome Community College is a member of the Middle States Association of Colleges and Secondary Schools.

The College is supervised by the State University of New York, and its curriculums are registered by the State Education Department.

The Civil, Electrical and Mechanical Technology programs are ECPD accredited Engineering Technology curriculums. ECPD is the Engineers Council for Professional Development, a national organization of engineering societies.

The Dental Hygiene program is accredited by the Council on Dental Education of the American Dental Association, and the Nursing curriculum is certified by the National League of Nursing.

The Council on Medical Education of the American Medical Association (AMA) has approved three other curriculums — X-ray Technology, Medical Record Technology and Medical Office Assistant, which is also accredited by the American Association of Medical Assistants. The Medical Record Technology program has double accreditation, too, having been approved by the American Medical Record Association as well as by AMA.

**The College reserves the right
at any time to make changes
deemed advisable.**

**FOR INFORMATION about
the college, its programs and its
admissions procedure, contact**

**Director of Admissions
Broome Community College
Binghamton, New York 13902**

**Phone 772-5001
area code 607**

1972-73 CATALOG
OF
BROOME
COMMUNITY COLLEGE
Binghamton, N. Y. 13902

A Comprehensive Community College
Supervised by the State University of New York
and
Sponsored by the County of Broome



CURRICULUMS of the COLLEGE

OCCUPATIONAL PROGRAMS

The following curriculums are designed to prepare graduates for immediate employment:

BUSINESS

Accounting
Marketing Management
Executive Secretarial
Engineering Secretarial

ENGINEERING TECHNOLOGY

Chemical Technology
Civil Technology
Electrical Technology
Mechanical Technology

HEALTH SCIENCES

Dental Hygiene
Environmental Health Technology
Medical Laboratory Technology
Medical Office Assistant
Medical Record Technology
Nursing
X-Ray Technology

UNIVERSITY-PARALLEL PROGRAMS

These curriculums are designed to prepare graduates for transfer to four-year colleges and universities in the third, or junior, year:

Business Administration
Engineering Science
Liberal Arts and Sciences

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OBJECTIVES OF THE COLLEGE

1. To provide the environment and the experiences which promote the students' vocational competence, individual growth and social responsibility through integration of the following:

KNOWLEDGE. The acquisition of parts, principles, theories and insights which are fundamental to the understanding of a specialized field of study and of life itself. Cognizance of common sources of information for further intellectual growth.

PROFICIENCY. Development of analytical thinking and language abilities for the comprehension, evaluation and communication of knowledge. Development of laboratory techniques relevant to the students' chosen vocational fields.

ATTITUDES. The stimulation for personal growth—vocational, intellectual, cultural and physical. The appreciation of and commitment to desirable social values.

2. To commit the resources of the College to the business, industrial, educational and cultural enrichment of the community.

DEGREE PROGRAMS OF THE COLLEGE

Graduates of Broome Community College receive associate degrees, and the courses of study fall into four general categories—technical, business, liberal arts and health sciences. Liberal arts courses are included in all curriculums, as it is believed that students need more than technical competence to be successful.

Applicants to the College should consider carefully the type of program they wish to pursue, for the nature of the offerings makes it difficult for a student to switch from one curriculum to another after commencing his studies.

TECHNICAL PROGRAMS

In the area of technical education, the College offers five programs. One, Engineering Science, is in effect the first two years of an engineering curriculum, and students who do satisfactory work in it should experience little difficulty in transferring to engineering colleges at the third-year level.

The other four are designed to train engineering technicians in the fields of Mechanical Technology, Chemical Technology, Electrical Technology and Civil Technology. Graduates of these programs are prepared for immediate employment in various types of technical work upon leaving the college.

BUSINESS

The Business curriculum is designed primarily to prepare graduates for immediate employment in one of four fields—Engineering Secretarial, Executive Secretarial, Accounting, and Marketing and Sales. In addition, there is a fifth option, Business Administration. It combines more university-parallel preparation with a minimum of job-oriented courses for the person who plans to continue his college education for a baccalaureate degree, even though he may want to work for a while before transferring to a four-year college.

LIBERAL ARTS AND SCIENCES

This curriculum is a university-parallel course, designed especially for the student who wishes to transfer to a four-year college or university after graduation. A sound liberal arts education is basic to many of the professions, such as medicine, law or teaching, and applicants who have such a goal would be well advised to make this selection. It is also considered excellent preparation for further schooling in business administration.

NOTE—Students in all programs spend at least one-fourth of their time studying such Liberal Arts subjects as English, psychology, sociology and economics. The College recognizes that, in addition to technical competence, a graduate should study those subjects which help him to understand people and their daily working and personal inter-relationships.

HEALTH SCIENCES

Opportunities for men and women interested in the health services field are provided in seven areas—Dental Hygiene, Medical Office Assistant, Medical Record Technology, Nursing, Medical Laboratory Technology, X-ray Technology and Environmental Health Technology.

Graduates of six of these curriculums are prepared to work immediately after graduation in physicians' or dentists' offices, laboratories or hospitals, while the Environmental Health Technology students are trained to fill jobs in controlling air and water pollution, in food sanitation and in ionizing radiation.

Graduates of these programs are also qualified to take whatever licensing examinations their professions require.

ADMISSIONS

A high school or state equivalency diploma is required for entrance to all curriculums. **All applicants must take the test of the American College Testing (ACT) program**, and must meet the minimum requirements of physical ability required by the occupational field in which they wish to engage. They must also be recommended by their high school principal or guidance counselor.

Application Procedure

Students are admitted at the beginning of the school year in the fall. However, applications will be processed at any time.

An application for admission must be made on official forms supplied on request by the Admissions Office.

A deposit of \$10 must accompany each application. The deposit is non-refundable but is applied as an advance payment on the student activity fee if the application is accepted. Once a student is accepted, he will be billed for an advance payment of \$50 on tuition. This is also non-refundable.

The Committee on Admissions may require an applicant to participate in an admissions counseling interview. Counseling interviews are not required of all who apply, but they may be requested by the applicant.

NOTE—Applicants who do not satisfactorily meet the entrance requirements may apply to enter the Collegiate Studies program. This preparatory year program provides opportunity for the student to strengthen his academic background so that he may enter any degree program of the College with a better expectation of successful accomplishment.

Readmission or Transfer

Applications for readmission or transfer to the College must be submitted to the Admissions Office prior to three weeks before the start of the term in which the applicant is requesting readmission. Applications received later than the above period may be returned to the applicant by the Director of Admissions without processing.

Transfer of credit from students who have been enrolled in other accredited colleges is subject to the approval of the chairman of the student's major department and the director of records. Grades earned at the college from which the student is transferring will not be entered into his cumulative grade-point average at Broome Community College. Students who have attended one or more other colleges must in all cases submit to the College Admissions Office an official transcript of work taken before formal acceptance will be granted.

Students transferring from other colleges will, as a general rule, be expected to complete a minimum of one year's work at Broome Community College, immediately prior to being granted the associate degree.

Credit by Examination

Advanced Placement Examinations and College Proficiency Exams:

Applicants who have completed any of the Advanced Placement or "Subject" Examinations sponsored by the College Entrance Examination Board or the College Proficiency Examinations sponsored by the University of the State of New York may apply for credit and advanced placement. Such requests will be handled in the same manner as transfer credit and will be granted where applicable, subject to the approval of the department chairman and director of records.

An examination for course credit may sometimes be given at the College, if a student makes such a request and can show evidence of ability or experience to indicate the likelihood that he will pass it. The examination must be taken before classes start in the particular course in which the student is seeking exemption.

The credit-by-exam concept is essentially the awarding of credit for theoretical knowledge gained outside the traditional classroom situation. The guidelines for this procedure are available from any of the College's department chairmen.

Entrance Requirements

In planning for college, it is advisable that each high school student enroll in a college preparatory curriculum. The following table should help in planning a high school program to prepare for admission to Broome Community College:

<u>Curriculum</u>	<u>Recommended High School Subjects</u>	<u>Other Desirable High School Subjects</u>
Business: Accounting Business Admin. Marketing Secretarial	*2 units Mathematics 2 units Science	College preparatory courses and Typewriting
Chemical Technology	*2 units Mathematics 2 units Science including Laboratory Science	Additional Mathematics and Science courses
Civil Technology	Physics *3 units Mathematics including Trigonometry	Additional Mathematics, Technical courses
Dental Hygiene	*2 units Mathematics Biology, Chemistry	Social Studies, Typewriting
Electrical Technology	Physics *3 units Mathematics including Trigonometry	Additional Mathematics, Technical courses
Engineering Science	Chemistry, Physics *3½ units Mathematics incl. Advanced Algebra	Additional Mathematics, Science and Technical courses
Environmental Health Technology	*2 units Mathematics 2 units of Laboratory Science	Additional Mathematics and Science courses
Liberal Arts and Sciences	*2½ units Mathematics 4 units in any combination of science, language, or additional mathematics	College preparatory courses
Mechanical Technology	Physics *3 units Mathematics including Trigonometry	Additional Mathematics, Technical courses
Medical Laboratory Technology	*2 units Mathematics 2 units of Laboratory Science	Typing, Additional Mathe- matics and Science courses
Medical Office Assistant	*2 units Mathematics 2 units Science	Typing, Additional Mathe- matics and Science
Medical Record Technology	*2 units Mathematics 2 units Science	Typing, Additional Mathe- matics and Science
Nursing	*2 units Mathematics Biology, Chemistry	College preparatory courses
X-ray Technology	*2 units Mathematics 2 units of Laboratory Science	Typing, Additional Mathe- matics and Science courses

*Academic units of Mathematics such as Algebra, Geometry or Trigonometry.

EXPENSES

Tuition and fees are payable at the Finance Office. All students will be required to pay their tuition and fees for the first quarter prior to registration. Any refund is at the option of the College.

Tuition

For New York State residents	
With residency certificate	\$525 per year
(Payable \$175 at the start of the first term and \$175 at the beginning of the second and third terms)	
Without residency certificate	\$1050 per year
(Payable \$350 at the start of the first term and \$350 at the beginning of the second and third terms)	
See below for explanation of residency certificate.	
For out-of-state residents	\$1050 per year
(Payable \$350 at the start of the first term and \$350 at the beginning of the second and third terms)	

After acceptance by the College, the student will be billed for an advance payment of \$50. This will be applied toward the tuition payment for the first quarter, but it will not be refunded should the student withdraw either before or after registration. Tuition for all students is payable at the beginning of each quarter of the school year.

The responsibility for payment of tuition rests upon the student, and the student or his parent is billed prior to the start of each term. Students will be suspended from classes if the established due dates for payment are not met.

SEE PAGES 16 AND 17 FOR FINANCIAL AID.

Residency Certificate

To qualify for the resident tuition fee, a student is required by law to present once each academic year on or before registration a residency certificate indicating that he has been a legal resident of the State of New York for one year and of the county in which he resides for six months.

Broome County Residents—Full-time students admitted to the College will be mailed a copy of the application for residency certificate prior to registration. This application must be completed and presented at time of tuition payment.

Out-of-County Residents—Full-time students admitted to the College will be mailed a copy of the application for residency certificate prior to registration. The application must be completed, notarized and presented to the **County Treasurer of the county in which the student resides**. The County Treasurer will then issue a residency certificate to the student. This residency certificate must be presented at the time of tuition payment.

Part-time students must meet the same requirements as stated above. The application for residency certificate form is available at the Finance Office and the Office of the Director of the Continuing Education Division.

The completed residency forms are required once each academic year.

Fees

The following fees will be charged, with the College reserving the right to change any of them:

STUDENT ACTIVITY \$40 per year

The \$10 deposit required with the application becomes advance payment on the activity fee, if the applicant is accepted. The activity fee entitles students to admission to varsity games, dances and parties, as well as a subscription to the student newspaper and the opportunity to participate in a varied program of co-curricular activities, including intramural athletics.

HEALTH \$42 per year

This fee covers the cost of the student health insurance program. If a student is covered under his family's health insurance, however, a statement to this effect will be accepted instead of the health fee, if the statement is signed by a parent or by the student, if he or she is of age. This statement should cite the name of the insurance program under which the student is covered, and it should be turned in to the Finance Office.

ACCIDENT \$10 per year

This is a mandatory fee for all full-time day students. The policy covers the student for 12 months starting September 1, 1971, for expenses incurred in or out of any hospital, and regardless of any other insurance he or she has.

GRADUATION \$10

This fee is paid at the start of the term preceding graduation.

ALUMNI LIFETIME MEMBERSHIP \$20

Membership in the Broome Community College Alumni Association is optional. The lifetime dues are payable at the start of the term preceding graduation, and they entitle graduates to complete association benefits.

CHEMISTRY LABORATORY \$10 per year for all students taking chemistry laboratory courses with 200 numbers.

Living Accommodations

The College has no dormitory facility and assumes no responsibility for student housing. As a service to students, the Student Personnel Office maintains an up-to-date record of housing accommodations which landlords submit as being available. But this constitutes neither approval nor rating by the College. Housing arrangements must be made directly by students and parents with local landlords.

All students not living with their families while enrolled at the College must register with the Student Personnel Office within a few days. In addition, they must complete the housing form for each address that they have while attending the College. This form must be signed by the parents or guardians thus showing their approval of the students' housing accommodations.

Room and Board

The cost of room and board for out-of-town students is dependent upon the demands of the student. The average cost varies from \$40 to \$50 per week.

Books, Supplies, Uniforms

Each student provides at his own expense the necessary books and instructional materials. These may be purchased at the College Bookstore maintained by the Faculty-Student Association for the convenience of the students. The cost varies, depending on the curriculum, from about \$235 to \$360 per year.

In addition, some curriculums require uniforms. Among these are Nursing, X-ray Technology, Medical Laboratory Technology and Medical Office Assistant. Gym clothes are necessary for physical education classes. Dental instruments and uniforms for Dental Hygiene students cost approximately \$175.

ACADEMIC STANDARDS AND REGULATIONS

Requirements for Graduation

Common requirements for all three degrees granted by the College:

1. Quarter point average must total 8.60 for a six-quarter program or the equivalent
2. Recommendation of the faculty for the awarding of the degree
3. Satisfaction of all obligations to the College

THE ASSOCIATE IN APPLIED SCIENCE DEGREE

This degree is given to graduates of these curriculums:

Accounting	Marketing Management
Chemical Technology	Mechanical Technology
Civil Technology	Medical Laboratory Technology
Dental Hygiene	Medical Office Assistant
Electrical Technology	Medical Record Technology
Engineering Secretarial	Nursing
Executive Secretarial	X-Ray Technology
Environmental Health Technology	

4. Degree requirements: a minimum of 96 quarter credits
5. Curriculum requirements:
 - a) A minimum of 60 credits in a student's major field. These are courses intrinsic to and required by the various curriculums.
 - b) A minimum of 30 credits in general education or liberal arts courses.
 - 1) Social Sciences: a minimum of 9 credits
 - 2) Biological and Physical Sciences (including Mathematics): a minimum of 9 credits
 - 3) Humanities: a minimum of 9 credits in English (composition and/or speech)
 - 4) Electives (or additional courses) in the foregoing fields comprising a minimum of 30 credits in the liberal arts and sciences or general educational areas
 - c) Satisfactory completion of all courses in a curriculum or as approved in a department
6. Satisfactory completion of required Summer Hospital Radiographic Technique program for X-Ray Technology students and clinical laboratory experience for Medical Laboratory Technology students

THE ASSOCIATE IN SCIENCE DEGREE

This degree is awarded to graduates of the Business Administration and Engineering Science curriculums and the Science Option in Liberal Arts and Sciences.

4. Degree requirements: a minimum of 96 quarter credits
5. Curriculum requirements:

At least 45 credits in the humanities, natural sciences, mathematics, the social sciences

THE ASSOCIATE IN ARTS DEGREE

This degree is awarded to graduates in the Liberal Arts and Sciences curriculum.

4. Degree requirements: a minimum of 96 quarter credits
(including physical education)
5. Curriculum requirements: a minimum of 72 credits distributed as follows:
 - a) Social Sciences: a minimum of 18 credits, of which 9 shall be in United States History or Development of Western Civilization
 - b) Biological Sciences and Physical Sciences: a minimum of 12 credits
 - c) Mathematics: a minimum of 9 credits
(this requirement may be satisfied if candidate has completed 3½ units of secondary mathematics through Advanced Algebra or the equivalent)
 - d) Humanities: a minimum of 27 credits, of which 18 shall be in English (composition, speech and literature) and 9 of which shall be in other subjects in the humanities
(Students in the Science Option must take a minimum of 18 credits in Humanities).
 - e) Electives: 80% shall be in the fields of study listed above
 - f) Physical Education: a minimum of 3 credits. Exception to this requirement may be made by the division director. Waivers may be granted for valid reasons.
 - g) Satisfactory completion of all courses in a curriculum or as approved in a department





Grades

Grade	Honor Points Per Credit Hour	Explanation
A	4	Outstanding achievement in meeting the objectives of of the course
B	3	Above average achievement
C	2	Average achievement
D	1	Below average achievement
P	0	Poor achievement—no honor points
F	0	Failure to meet the objectives of the course
W	0	Withdrawal from course within first four weeks of term
I	0	Incomplete. Work to be made up within one week or by special arrangement with the department
S	0	Satisfactory. (Final grade for a non-credit course or a mid-term grade in a credit course to denote a student's progress.)

In order for a student to remain in good standing, he must also demonstrate a mature attitude, interest and cooperation.

Grades are issued at the end of each term. Students will also be notified of their academic standing at the approximate mid-point of each term. Satisfactory progress will be denoted by an "S" letter grade. Progress below average (below C) will be denoted by an appropriate letter grade.

Honors

At the end of each term, students who have earned an average of 3.5 or better are named to the President's List. Those with averages between 3.0 and 3.49 are placed on the Dean's List. A student must complete a minimum of 12 credit hours for a term to be eligible for either list.

Academic Probation

A student is placed on academic probation for any of the following reasons:

If he does not earn a grade point average of:

1.2 the first term

1.4 the second term

1.5 the third and all other terms

OR

If he receives an "F" in any course.

Dismissal

Students may be considered for dismissal for the following causes: More than one consecutive probationary period, more than one failing grade in a term, failure to earn a point average of 1.0 in any term, irregular attendance, neglect of work or financial obligations, failure to comply with College rules and regulations or official notices, conduct unbecoming a student.

Action leading to the requested withdrawal of a student can be taken up by the Executive Committee. However, any student may petition his department staff to waive the academic requirements of the College leading to dismissal; such petitions are acted upon by administrative officers of the College upon their presentation by the department concerned. The College reserves the right to be the sole judge in all matters pertaining to dismissal.

Students who are dismissed from the College will not be permitted to enroll in the day school term immediately subsequent to the dismissal action.

Withdrawal from Courses or from the College

From Courses: Counseling with a student's department chairman (or his designee) is required prior to a student's withdrawal from a course. The chairman's signature is evidence of such counseling, since permission is not required. Re-enrollment in any course will be on a space-available basis.

From the College: A student withdrawing from the College must immediately notify the Student Personnel Office and complete the proper termination forms. Failure to comply with this regulation may cause the individual to forfeit his right to honorable dismissal and to lose any refund of fees.

The Student Personnel Office will not permit a student's withdrawal papers to be completed without making every reasonable effort to insure that the student has reviewed the matter with his department chairman (or his designee).

Recording of Grades: The following procedure will be used to record grades for students withdrawing from a course or from the College:

No grade if withdrawn within the first two weeks of the term, "W" grade if after the second week and before the end of the seventh, "WF" or "WP" if after the seventh week and before the end of the ninth. After nine weeks, the grade will be that recorded by the instructor (A, B, C, D, P, F, I, WP or WF).

Attendance Regulations

Attendance in all scheduled course activities is expected as part of each student's responsibility to himself for his own education. The basic policy of the College is that the student's academic achievement will determine his grades and not the bare statistics of his presence or absence.

Student Responsibility: Each student is responsible for any work missed regardless of the reason for his absence.

Instructor Responsibility: Each instructor is responsible for relating the significance of attendance to the objectives of his course and to inform his students of this significance in the first class meeting. A student will be reported to the dean of students' office for consultation when excessive absences appear to be affecting his success in a course.

Department Responsibility: Within the spirit and framework of college policy, each department may develop its own guidelines to meet its needs. Such guidelines are subject to the approval of the division director.

Repeating Courses

A student who wishes to repeat courses already taken at Broome should secure permission from his department chairman or advisor and should ask that the college policy on repeating courses be explained.

All courses in which a student registers will be shown on his permanent record subject to the conditions of the withdrawal policy. Thus if a student repeats a course, both enrollments and both grades will appear. When a student repeats a course, the most recent grades and honor points earned will be used to determine his term and cumulative averages.

Auditing Courses

College policy does not permit registration for the purpose of "auditing" courses.

Instructional Problems

Students who feel that instructional programs or teaching techniques in their classes can be improved are welcome to discuss this with their instructors. Such considerations as quality, standards and effectiveness of the course are matters that concern both the College and the student.

If the matter cannot be resolved in the discussion between the student and his instructor, the student can then arrange a meeting with the chairman of either his department or the instructor's, or perhaps with both of them. Any of the parties may request that the dean of instruction be informed of the discussions.

Late Registration

An applicant may not register later than one week after the beginning of the fall term except by permission of the Dean of the College.

Length of Curriculum

All associate degree programs are two years in length. The college year is divided into four quarters or terms of approximately 10 weeks each plus an examination week. X-ray Technology students must take courses during two summers, and Medical Laboratory Technology students must complete two quarters of clinical laboratory experience. Students in the other curriculums spend three quarters on campus each year, with their summer vacation coming in the fourth quarter.

Transfer to Senior Institutions

Students desiring to transfer are encouraged to consult with their faculty advisor, department chairman or a counselor in the Counseling Center for assistance in selecting colleges that are appropriate for their goals and demonstrated college achievement.

Broome Community College will not as a general rule encourage students who have less than a C (2.0) average to transfer to other colleges.

An applicant for transfer who will not complete the requirements for the associate degree at Broome Community College prior to the time of anticipated transfer may not be recommended for transfer, if the faculty of the College feels the applicant has not completed a desirable breadth or depth of study to provide suitable criteria for measuring academic ability.

The following procedures are to be observed by students desiring transfer:

1. Initiate the application to transfer. Application forms for colleges in the State University of New York are available in the Counseling Center at Broome Community College. Students should apply directly to all private and out-of-town four-year colleges, and all applications should be submitted during November and December of the second year at Broome. After these dates the application may be deferred or returned due to lack of space.
2. Fill out Section I (in duplicate) of the Transfer Record Form in the Counseling Center. Students in Liberal Arts and Sciences, Engineering Science and the Business Administration curriculums will be requested to complete the Transfer Record Form regardless of their intention to transfer immediately upon graduation from Broome.
3. Complete a Request For Transfer of Academic Record Form in the Counseling Center or Student Personnel Office for each college to which they are applying.
4. Forward request for references or recommendation forms from other colleges to the Counseling Center.
5. Report acceptances and rejections from all colleges to the Counseling Center.

Please review these procedures carefully. Omission of any step may result in a delay of your records being forwarded to another college. If you have any questions regarding the above procedure, go to the Counseling Center.



FINANCIAL AID

More and more financial aid is becoming available for young people seeking a college education, with the result that fewer men and women are being denied the advantages of higher education because of the costs.

Financial aid at Broome Community College falls into three broad categories—awards, loans and part-time work. The awards are scholarships and grants that do not have to be repaid; the loans must be paid back but the repayment plans are lenient and the interest rates low; part-time work is arranged through the College and coordinated with the student's academic schedule.

The College has a financial aids brochure with more detailed information than appears here. This brochure is available from the College financial aids office in the Administration Building.

The College is affiliated with the College Scholarship Service (CSS) of the College Entrance Examination Board. Participants in CSS subscribe to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists colleges and universities by analyzing the student's need for financial assistance.

Entering students seeking scholarship assistance are required to submit a copy of the Parents' Confidential Statement (PCS) form by April 15 to the College Scholarship Service, designating Broome Community College as one of the recipients. The PCS form may be obtained from the College, a secondary school or the College Scholarship Service, P. O. Box 176, Princeton, New Jersey 08540.

THE BROOME COMMUNITY COLLEGE FOUNDATION

The College has established this Foundation to help students overcome economic barriers to higher education. It has established a Scholarship Fund by enlisting the cooperation of industries, organizations and individuals in the community. Their contributions are administered by the Foundation to assist needy and qualified students. During the 1971-72 college year, the Foundation awarded \$48,606 to 140 students. This was an increase of more than \$8,000 over the previous year.

The Foundation also collects and distributes funds to aid in the improvement and growth of faculty capabilities, thus enabling faculty members of the College to take graduate work and to attend seminars, workshops and conferences in their fields.

AWARDS

Scholar Incentive Awards

Many students attending Broome Community College who are New York State residents are eligible for a Scholar Incentive Award. This award is a direct grant payable to the student each term, and it may range between \$100 and \$350 depending upon the net taxable income of the student's family.

It is the individual student's responsibility to obtain and complete the necessary application forms. These may be obtained from the financial aids office in the Administration Building or from the University of the State of New York, the State Education Department, Regents Examination and Scholarship Center, Albany, New York 12224. For fall term benefits, it is recommended that applications be filed before mid-August. Applications will be accepted after that, but students should heed the mid-August date to avoid delays in receiving Scholar Incentive Award checks. Students must apply once a year.

Students who are eligible for these awards must pay full tuition upon registering. Their award checks will be remitted to the student by the Finance Office when received from the state. The Award Certificate sent to each student from Albany is not acceptable as a credit toward tuition.

Details are available from the financial aids office in the Administration Building.

New York State Regents Scholarships

Recipients of New York State Regents Scholarships may use them at the College, although the Regents Scholarship for Engineering and Scientific Studies is applicable only to the Engineering Science program. Regents Scholarships are applied toward tuition.

Federal Government Grants

Educational Opportunity Grants are available to exceptionally needy students under provisions of the Higher Education Act of 1965. These grants at Broome Community College average between \$200 and \$500 for the academic year, depending upon need.

Service veterans with at least six months of active duty since January 31, 1955 are eligible to receive at least \$175 a month (more if they have dependents) for full-time study from the Federal government, under the Veterans Education and Training Amendments Act of 1970. Beneficiaries of this financial aid should be aware that they will probably not receive their first monthly payment until about two months after the start of the fall quarter. Recipients of this financial aid are not eligible for Regents Scholarships. Inquiries and certificates of eligibility should be directed to the director of records and scheduling in the Administration Building.

Nursing Educational Opportunity Grants are available to students in the College's degree-granting Nursing program. These grants at Broome Community College average between \$200 and \$600, depending on the students' financial need, and this program is funded by the Federal Government.

LOANS

The two major sources of loan funds available to students of the College are the New York State Higher Education Assistance Corp. (also known as the Guaranteed Loan Program) and the National Defense Student Loan Program. Both provide long-term loans to students demonstrating financial need. Repayment of principal or interest for either type loan is not required until the student ceases his full-time college career.

Limited loan funds are available, too, for Broome County residents through the Parker Foundation. The College, moreover, is participating in the Federal Nursing Student Program.

WORK OPPORTUNITIES

College Work-Study Program

The College Work-Study Program is available to all students who demonstrate financial need as defined by the Federal Government. Special emphasis is directed to students from low income families.

Work assignments vary within the College and include work in maintenance, laboratories and offices. The prevailing student wage for campus jobs is paid. During the normal school year, work assignments are limited to 15 hours per week and during the summer 40 hours per week.

Part-Time Jobs

Part-time work is also available at times throughout the academic year, aside from the College Work-Study Program. These jobs are off-campus, and students desiring work should consult the bulletin board in the financial aids office in the Administration Building.

ABOUT BROOME COMMUNITY COLLEGE

THE COLLEGE

Broome Community College is a comprehensive two-year college. It has programs designed to prepare graduates both for immediate employment and for transfer to four-year colleges and universities at the junior, or third-year, level.

In addition to its daytime enrollment, which numbered more than 2,300 last year, the College has a Continuing Education Division which had more than 1,700 part-time evening students in the fall of 1971 and over 1,200 taking courses during the 1971 Summer Session.

The College is co-educational, publicly-supported, and has historically attracted about two-thirds of its student body from Broome County and one-third from outside the county. The ratio has recently become closer to 75% and 25%.

The day student body can be classified into four parts, based on study objectives—university-parallel or transfer programs, the business program, engineering and engineering technology curriculums, and health science courses.

The College is sponsored by Broome County, supervised by the State University of New York, and accredited by both professional and educational organizations (See inside front cover).

THE CAMPUS

The College campus is located three miles north of Binghamton on Upper Front Street, which is Route 11 and Route 12 at this point running alongside of Interstate 81. Eight of the 10 buildings form two contiguous quadrangles to make a compact campus layout.

Most of the buildings are two stories high, of modern functional design, and made of brick with colored panel-wall facing. They lie in a suburban setting in the virtual center of the College's 120 acres of land.

In addition to classrooms and laboratories, the campus has its own cafeteria, gymnasium and athletic field, and a Little Theater. These facilities add up to make the campus a \$9,000,000 investment in the youth of Broome and surrounding counties.

THE COMMUNITY

The community is an industrial and agricultural area in New York State's Southern Tier. It is in the approximate center of the state, measuring from east to west, and its southern extremity touches the Pennsylvania state line.

Binghamton is the principal city in Broome County, but it is only a part of the community known as the Triple Cities. Endicott and Johnson City are the other two cities, but Vestal and other outlying suburbs help to make the community much larger in population and geography than the city of Binghamton.

Binghamton has a population of 64,123, yet the Triple Cities area embraces 155,522 people. The population of Broome County is 221,815. Diversified industry in the community includes such firms as IBM, General Electric, Singer Co. (formerly Link), GAF, New York State Electric & Gas Corp. and Endicott Johnson.

The College has become an integral part of the community since it was started in 1947. Many of the campus facilities are offered without charge for use by responsible organizations, and most of the College's curriculums are designed to help fill the economic needs of the county.



GROWTH AND EXPANSION

The rapid growth in student enrollment in recent years has made it necessary for the College to embark on an extensive expansion program. A new library building was opened during the 1967-68 school year, and a new Business Building, planned for occupancy in September of 1972, is located in the center of the campus, as the College moves toward an anticipated student body of 3,600 in the 1970's.

The campus was constructed in 1956 to accommodate 900 students, which was about three times the College's enrollment at that time. The student body reached double that 900 capacity in 1968.

HISTORY

Broome Tech graduated its first class in 1949. These students had entered what was then known as the New York State Institute of Applied Arts and Sciences at Binghamton in the fall of 1947. The original institute was one of five founded in the state in 1946, following the pattern of six agricultural and technical institutes which New York had established earlier in the century. The first programs offered were all occupational in nature and included Chemical, Electrical and Mechanical Technologies, as well as Medical Office and Technical Office Assistant courses.

In 1953 New York relinquished operating control of the school to a new sponsor, the County of Broome, under provisions of the newly-enacted State Community College Law, and the name was changed to Broome County Technical Institute. In 1956 the name was again changed, to Broome Technical Community College, to reflect the increasingly comprehensive nature of the educational offerings. In 1971 the name became Broome Community College as the scope of the curriculums continued to expand.

In keeping with the comprehensive objectives of this community college, a university-parallel curriculum was instituted in the Engineering Sciences in 1959, a two-year program of Liberal Arts and Sciences started in the fall of 1962, and a transfer program in Business Administration begun in 1963.

X-Ray Technology was added in 1965, Medical Laboratory Technology in 1966, Nursing and Environmental Health Technology a year later, and Medical Record Technology in 1969.

For its first five years, the school was housed in a refurbished State Guard armory in downtown Binghamton. This building was gutted by fire in September of 1951, and for the next five years Kalurah Temple and two other buildings in the city provided temporary quarters. In 1957 the college moved to its present campus on the north side of Binghamton on Route 11. The first addition to the original campus came with the construction of Titchener Hall, which was dedicated on May 17, 1963. A temporary classroom building was added in 1966, the Library Building built a year later, and the new Business Building constructed for opening in 1972.

CONVOCATIONS

Speakers in a diversity of fields are brought to the campus during the school year as part of the College's convocation program. These convocations are considered a phase of the academic curriculum, although they are scheduled apart from the regular classroom program.

Such nationally known figures as Dr. Henry Kissinger, President Nixon's top advisor for foreign policy; consumer crusader Ralph Nader; James Farmer, former director of CORE; syndicated advice columnist Ann Landers and civil rights leader Julian Bond have spoken at convocations.

Other noted speakers who have been here for convocations include television writer Rod Serling, the late Norman Thomas, James Meredith and author Vance Packard.

CAMPUS CARILLON

The College has recently installed a Maas-Rowe symphonic carillon. It tolls the hours with the Westminster chimes, and periodic concerts are played either by individuals or by the automatic music roll feature. The carillon was a gift to the College, donated by former trustee Dr. Leopold Eckler and the college foundation.

COUNSELING CENTER

A Counseling Center with five full-time counselors is available to help students adjust to college life and to solve problems that develop. The four main areas are academic, transfer, career and social counseling. The center is housed in a 10 x 50 foot trailer next to the Administration Building.

FACULTY-STUDENT ASSOCIATION

The Faculty-Student Association of Broome Community College, Inc., is an educational corporation designed to provide to the College, and particularly to the students and faculty, services that are not provided for in the regular College budget.

It provides the corporate organization through which the student fees are expended under a budget prepared by the Student Senate and such other organizations as the Athletic Board of Control and the Convocation Committee. It also operates the College Bookstore and cafeteria.

Through the modest earnings of the bookstore the income from student fees is augmented to support new or special activities.

The association is governed by a board of directors elected by members who hold certain offices on campus.

The operating philosophy is to make the educational program outside of the classroom a well-rounded supplement to the academic experience of the student.

JOB PLACEMENT

Many companies send representatives to the campus each spring to interview seniors about jobs immediately after graduation. This practice has grown to the point where between 25 and 75 concerns conducted job interviews in each of the last few years.

Leading national corporations, as well as many local companies, have been among those interested in Broome CC graduates. The list includes such major area employers as International Business Machines, New York State Electric & Gas Corp., Singer Co. (formerly Link), GAF and practically all the banks in Broome County.

Such firms as Eastman Kodak, Xerox, DuPont, Union Carbide, National Cash Register, Sun Oil Co., and Corning Glass represented the national scene.

The job interviews are especially directed toward students in the occupationally-oriented Business program and the Electrical, Mechanical, Civil, Chemical and Medical Laboratory Technology curriculums.

In cooperation with the department chairmen, the Student Personnel Office coordinates permanent placement, including employment listings and appointments for interviews.

LEARNING CENTER

The College is committed to the learning center concept of individualized instruction. Several curriculums have developed program units to permit students to study at their own pace and own convenience, using program material prepared by their own instructors.

Some 50 carrels using audio and visual devices comprise the Learning Center facilities on campus. The Learning Center, however, should be regarded more as a concept of learning than as a physical center or equipment. The physical facilities are only the means to the end, which is learning.

THE LIBRARY

A \$1,500,000 Library Building was opened during the 1967-68 college year. The College Library occupies the top two floors of this three-story building, so that its capacity is 900 readers and 75,000 volumes.

Since 1947 the Library has developed one of the most complete collections of technical works in the Southern Tier, consisting of about 35,000 books, pamphlets and government documents. Additions are currently in such areas as liberal arts, business, health sciences and police science to reflect the College's broadened scope of curriculum offerings.

Extensive files of periodicals and journals, recordings and prints of well-known paintings are also included in the library's holdings.

Part of the library's purpose is to stimulate intellectual curiosity, to promote independent research, and to provide leisure-time reading facilities for students and faculty.

The Library is open evenings during the college year and therefore is also available for evening division students. There are also library hours on Saturday mornings and Sundays in the late afternoon and evening.

STUDENT CENTER

The busiest and most versatile building on the Broome Tech campus is the Student Center. It houses the gymnasium, the College Cafeteria, Bookstore, Faculty Dining Room and the Little Theater. This building is used by day and evening students of all curriculums.

ALUMNI

Transcripts

Each graduate is entitled to two transcripts of his work completed at the College. One dollar is charged for each additional transcript.

Alumni Association

All students of the College may become paid-up lifetime members of the Broome Community College Alumni Association, which is a non-profit corporate organization.

The association has its own officers and board of directors and its primary purpose is to provide a link between the College and its graduates. A quarterly printed Alumni Newsletter helps to accomplish this objective by supplying alumni with news of the College as well as information about other graduates.

The Alumni Association supports the College's scholarship program and conducts events for its members throughout the year, such as the annual Alumni Dinner-Dance.

CO-CURRICULAR ACTIVITIES

The College recognizes the fact that student experiences outside the classroom are important in one's over-all development. For this reason the College supports an active co-curricular program as a complement to classroom studies. The variety of activities on the campus reflects the diversification of student interest and provides the opportunity for students to develop talents, leadership ability and a sense of social responsibility.

Co-curricular activities are guided by two faculty-student committees—the Student Activity Board of Control for the College's non-athletic program and the Athletic Board of Control for sports.

Student Senate

The Student Senate, the governing body in student affairs, is the heart of the co-curricular activity program. The officers, elected from the student body, and the representatives from the various curriculums promote and co-ordinate the student activities. The Social Committee is one of the important Student Senate committees, as it is responsible for the extensive social program of the Senate.

Music

The College has a fine history of student-singing organizations, such as the College Choir for men and women. These musical organizations have sung frequently at State University of New York choral festivals, as well as for church and civic organizations. All students, as well as faculty and staff, are welcome to sing in the choir.

Honor Societies

Phi Theta Kappa

In 1962 the Mu Eta chapter of Phi Theta Kappa was established at the College. Phi Theta Kappa is a national honor society at junior colleges, similar in purpose to Phi Beta Kappa at the four-year colleges and universities. Mu Eta chapter is open to freshmen and seniors at Broome CC who have achieved outstanding academic grades, been especially active in co-curricular participation, demonstrated outstanding qualities of leadership and responsibility, and made noteworthy contributions to the College.

Sigma Phi Alpha

The national dental hygiene honor society, Sigma Phi Alpha, has a chapter at Broome CC, the Upsilon chapter. Senior Dental Hygiene students who rank highest in scholarship and character and who exhibit potential qualities for future growth and attainment are selected for membership.

Publications

The Fulcrum is the campus newspaper and the **Citadel** is the College yearbook. Positions on both publications are open to all students.

The Fulcrum's purpose is to report news of the campus, student body and faculty. It also provides a place for students to express their ideas about campus activities and about events related to college life.

The Citadel provides a record, mostly pictorial, of the school year.

Professional Society Affiliates

Since exposure to organizations in their fields of study is considered of benefit to students, many curriculums have their own affiliates of national professional societies. Among these are:

SME, the Society of Manufacturing Engineers, for Mechanical Technology students.

A college chapter of the Administrative Management Society, mainly for Business students although all are welcome. Its abbreviation is CAMS.

Civil Technology Association aims to pursue in greater depth than the classroom permits the many phases of the field.

Dental Hygiene Association, an affiliate of the American Dental Hygiene Association.

Broome CC Chapter Future Secretaries Association, affiliated with the National Secretaries Association (International) Binghamton Chapter.

IEEE, the Institute of Electrical and Electronics Engineers, for Electrical Technology students.

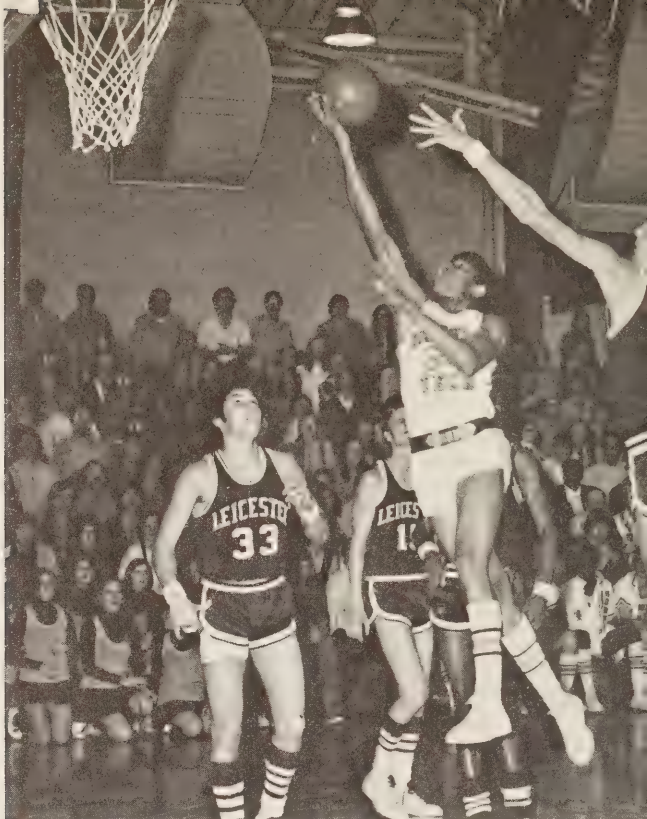
Medical Assistants Association is designed to give members a closer look at their field, as well as supply them with some social relaxation too.

In addition, some meetings of local professional societies are attended by students, as the American Chemical Society invites Chemical Technology students to its meetings. Some professional societies hold meetings on campus, too, and students are always welcome to attend. Thus students have the opportunity to become acquainted with professional people in their fields of study and to attend lectures and see films and demonstrations of new developments.

Other Clubs

In addition to the co-curricular activities already listed, other organizations are active on campus, such as the Art Club, Camera Club, Circle K, Sigma Epsilon Chi, Newman Association, Broome CC Players, Outing Club, Rifle Club, Ski Club, Social Activities Committee, Veterans Club, and the cheerleaders. All are open to all students in good standing. Details on the purposes and requirements for membership in all clubs are available in the Student Handbook.





ATHLETICS

Varsity Sports

Broome Tech fields varsity teams in seven sports—basketball, soccer, baseball, cross-country, golf, tennis and wrestling—and has acquired an excellent reputation for team play and sportsmanship.

The basketball team has captured the regional junior college title in nine of the last 16 years and has won 560 games and lost 158 for a .780 percentage. The baseball team has won two regional tournaments, and the cross-country, golf, tennis and soccer squads have also been regional powers in the past.

Intramural Sports

All students may participate in intramural sports. Men's teams representing the various curriculums compete for the coveted President's Trophy, awarded annually to the one acquiring the most points in a variety of activities. League competition is conducted in flag football, basketball, volleyball, soccer and softball, while students also compete in individual sports such as golf, badminton, archery, tennis, cross-country and bowling.

Archery, skiing and co-educational bowling clubs offer additional opportunity for participation in recreational activities, although they do not count in President's Trophy competition.

Women's Sports

The College also has a varied sports program for women students. In addition to the Physical Education classes, there is intercollegiate and intramural competition.

Intramurals are contested in volleyball, badminton, tennis, archery, basketball, softball and bowling.

HONOR AWARDS

- American Chemical Society (Binghamton Section) Award** of \$50 to the outstanding senior in chemistry.
- American Society for Testing and Materials (Binghamton Chapter) Award** of a one-year membership in the society to a Mechanical or Civil Technology senior who has shown superior scholastic ability and an interest in testing or in materials.
- Binghamton Chapter, New York State Society of Certified Public Accountants Silver Award** of a silver tie pin to the outstanding accounting student who is planning to continue his accounting career at a four-year college or university.
- Broome County Chamber of Commerce Award** of an engraved certificate to two seniors (a man and a woman) for leadership in co-curricular activities and for satisfactory academic achievement.
- Broome County Women's Republican Award** of \$25 to an outstanding student in history.
- Collegiate Administrative Management Society Chapter Award** of five inscribed pewter bowls to the outstanding students, academically, in each of the five options of the Business Division.
- Colonial TV Award** of a \$25 gift certificate to an Electrical Technology senior who has shown outstanding ability in laboratory work.
- French Embassy Awards** to the six best French language students. Donated by the French Embassy.
- U.S. Greene Mathematics Award** of \$50 to a senior for showing a high degree of ability and progress in mathematics.
- Institute of Electrical and Electronics Engineers (IEEE) Award** of \$50 from the Binghamton Section of IEEE to an Electrical Technology senior who has shown outstanding ability and leadership in the IEEE chapter. The student must be in the top quarter of his graduating class, and he will also receive an IEEE certificate from the national office.
- International Material Management Society (Southern Tier Chapter) Award** of \$75 to a Mechanical Technology senior who has demonstrated an interest in material handling, mechanical engineering or industrial engineering and who plans to make a career of one of these fields.
- Ladies Auxiliary of the Broome County Area Chapter of the New York State Society of Professional Engineers Award** of a \$100 scholarship to an Engineering Science senior who has shown a high degree of engineering ability. Financial need is a factor in selecting this recipient.
- Sales and Marketing Executive Club of the Southern Tier Award** of a \$200 scholarship for one person or \$100 each to two freshman students in the marketing program on the basis of need and academic performance. Recipient must be a Broome County resident.
- Society of Mechanical Engineers Award** of the Tool Engineers Handbook to a senior in the student SME Chapter who has contributed outstanding service.
- Stevenson Medal**, given by the New York State Dental Society, to the Dental Hygiene student who possesses in the highest degree the qualities considered necessary for success in this work, such as theory, technique and personality.
- Upsilon Chapter of Sigma Phi Alpha (National Dental Hygiene Honor Society) Award** of membership in the chapter. Limited to the top 10 percent of the Dental Hygiene graduates who rank highest in scholarships and character.
- William E. Wilson Memorial Award** to a Civil Technology senior for academic achievement and citizenship.

DIVISION OF CONTINUING EDUCATION

Credit courses for adults are offered year-round during the evenings and during the Summer Day session. An adult may enroll in any evening course if, in the College's judgment, he has the ability to do college-level classwork and if he has the necessary prerequisites for the course. Full details about these programs are contained in the catalog available on request from the College's Division of Continuing Education. Call 772-5012.

Evening Session

Evening courses lead to various evening diplomas (32 semester credit programs in Business; Chemical, Civil, Electrical, and Mechanical Technologies; Police Science, Computer Studies and Production Management; as well as General Studies). These diplomas are the bases of required study for the Associate in Applied Science Degrees in Business, Industrial Technology and Police Science and for the Associate in Arts degree. The evening terms begin September 5, 1972 and January 29, 1973.

Responding to special interests and community needs, Broome Tech has instituted the Resource Development Programs (RDP). These are short courses of three and six sessions each—short compared to the normal 15 weeks of the regular credit courses in the evening and Saturday program.

Catalogs of courses and programs are available from the Division of Continuing Education.



Summer Session

Summer credit courses, many of which can be accepted by other colleges for transfer, are available during the days and evenings. Developmental and college preparatory subjects are also available as non-credit offerings. Summer semesters are scheduled to start on June 26, 1972 and June 25, 1973. Summer Session catalogs may be obtained from the Division of Continuing Education.

Part-Time Day Students

Enrollment as part-time day students will be on a strict space-available basis. Registration will be conducted by the Division of Continuing Education and generally will be held on the Thursday prior to the first day of the term at 8 a.m. in the Student Center. Late registration will be accepted only during the first five class days of the term.

Individuals may register for part-time day enrollment for a maximum of 6 term credit hours or two courses by applying directly to the dean of the Division of Continuing Education at registration time. Only in exceptional circumstances will applicants be permitted to enroll for a maximum of 12 term credit hours, subject to the approval of the Admissions Committee of the College. Broome Community College graduates, however, need only have prior approval from the department chairman.

A part-time day student will not be permitted to enroll in the subsequent day term if in day courses he has received two "F" grades, two "P" grades, or a "P" and an "F" grade in one day term or in two consecutive day terms. Exceptions to this policy may be considered for unusual circumstances. In these cases students must petition in writing the dean of the Division of Continuing Education, who will make final determination.

Part-time students who withdraw from courses must complete the proper termination procedures at the Division of Continuing Education office.

All individuals admitted on other than a full-time basis will be subject to policies governing students in the Division of Continuing Education, in addition to regulations governing full-time students. Such enrollment does not automatically make the enrollee a candidate for an associate degree.

Tuition and Fees for Part-Time Day Students

Residents of New York State will pay \$14.67 per quarter credit hour as tuition for courses they enroll in. Out-of-state residents must pay \$29.34.

There is also a student activity fee of \$2 per term for each part-time student enrolled in day classes. This entitles these students to admission to convocations and to issues of the student newspaper. It does not, however, include admission to varsity sports events nor to copies of *The Citadel*, the College yearbook, or membership in student organizations. The student has the option, though, of paying \$10 per term and receiving the same activity privileges as full-time students with the exception of receiving a copy of the College yearbook.

In no case should a student be charged more than the full-time student activity fee of \$40 per academic year.

A fee of \$10 is charged per term for part-time students taking 12 or more academic hours. This entitles the student to the same activity privileges as full-time students with the exception of receiving a copy of the College yearbook. Out-of-county residents will need residency certificates. See page 8. Broome County residents may complete residency forms at registration.

SPECIAL PROGRAMS

COLLEGIATE STUDIES CERTIFICATE PROGRAM

Students who either lack the minimum requirements for admission to the degree programs of the College, or those who have been out of school for several years, may request enrollment in the Collegiate Studies Certificate Program. This is a year-long sequence of study emphasizing the fundamental concepts of English, mathematics and science. Students in this program are considered regular college students. These students are eligible for all campus social events and co-curricular activities. At the end of the year, students are evaluated by the faculty and must be recommended for entrance to a degree program before being admitted in the subsequent year. This was formerly known as the Pre-Tech program.

DIPLOMA NURSING

Nurses in the diploma training program at Binghamton General Hospital take part of their first year of study at Broome Community College. Under this program these students may participate in all activities of the college except varsity athletics.

CURRICULUM OUTLINES



BUSINESS

The Business Division offers courses of study in five different options. These are Engineering Secretarial and Executive Secretarial, Accounting, Marketing Management and Business Administration. The first four are designed to prepare graduates for immediate employment, while the Business Administration option is for students planning to continue their education at a four-year college or university.

It is possible to transfer from all programs. But because each student's transfer credits are evaluated by the four-year institution, the number of credits accepted can vary. Any student planning to transfer should maintain a minimum 2.5 grade point average.

Administratively, two departments cover these five options. Accounting, Marketing Management and Business Administration are in the Administrative Management Department; the Engineering Secretarial and Executive Secretarial programs comprise the Secretarial Sciences Department.

These programs were planned with the assistance of businessmen, accountants, administrative managers, comptrollers, auditors, sales managers, engineers and secretaries.

Employment in business and industry, as well as management training programs offered by banks, chain stores and insurance companies, provide some of the best opportunities for a graduate of the Accounting and Marketing Management options.

OCCUPATIONAL PROGRAMS

Engineering Secretary

Graduates of this option can obtain immediate employment as stenographers, secretaries or private secretaries. Students in this option study science and engineering terminology in addition to their business courses. Therefore, they can understand the specialized language of engineering and are well prepared to work on engineering reports, records and correspondence.

Executive Secretary

Graduates of this option can obtain immediate employment as stenographers, secretaries or private secretaries. Students in this option may elect courses from other fields of study in the College consistent with their interests and vocational goals. Therefore, they can understand the specialized language used in the professions, as well as in government and business firms.

Accounting

Students taking this option receive their training in such basic areas as intermediate accounting, cost accounting and internal auditing. Graduates have successfully taken position in banks, industrial firms, public accounting and private business.

Marketing Management

Training is given in sales, advertising, management and research. Employment is generally found in sales of services, equipment, insurance, products at the wholesale level, and management training positions.

TRANSFER PROGRAM

Business Administration

The option is designed specifically to prepare graduates to continue their business studies at a four-year college or university. While offering maximum transfer potential toward a bachelor's degree in accounting or business administration, it still gives students preparation for employment if they decide to work instead of seeking their baccalaureate degrees.

ADMINISTRATIVE MANAGEMENT DEPARTMENT

1st YEAR

for curriculum options in

- Accounting
- Business Administration
- Marketing Management

			Hours Per Week		
			Class	Lab	Credits
Term 1					
BU 101	Accounting		4	0	4
BU 141	Business Mathematics		3	0	3
BU 145	Business Law		3	0	3
LA 255	Economics		3	0	3
LA 801	English		3	0	3
	*Mathematics or alternate course		3	0	3
			19	0	19
Term 2					
BU 102	Accounting		4	0	4
BU 146	Business Law		3	0	3
BU 151	Business English		3	0	3
BU 292	Marketing		3	0	3
LA 256	Economics		3	0	3
LA 802	English		3	0	3
			19	0	19
Term 3					
BU 103	Accounting		4	0	4
BU 130	Introduction to Electronic Data Processing ...		3	0	3
BU 142	**Business Statistics or MA 101 Mathematics ...		3	0	3
LA 257	Economics		3	0	3
LA 803	English		3	0	3
LA 804	**Effective Speaking or PH 101 Phys. Science ..		3-2	0-2	3
			19-18	0-2	19

*MA 100 Mathematics for students who did poorly in Elementary Algebra or who have been away from it more than four years. MA 101 Mathematics for students who have passed Elementary Algebra or MA 100 Mathematics. An alternate course will be chosen by the department for students who have passed Intermediate Algebra or Math 11 in secondary school, or MA 101 Mathematics.

**Students who choose the Business Administration option will take LA 804 Effective Speaking and those who passed MA 100 Mathematics in the first term must now take MA 101 Mathematics instead of BU 142 Business Statistics. Accounting and Marketing Management students will take BU 142 Business Statistics and PH 101 Physical Science.

Accounting Option

2nd YEAR

			Hours Per Week		
Term 4			Class	Lab	Credits
BU 204		Intermediate Accounting	4	0	4
BU 207		Cost Accounting	4	0	4
BU 251		Office Management	3	0	3
BU 252		Business Report Writing	3	0	3
		Elective approved by the department	3	0	3
			17	0	17
Term 5					
BU 205		Intermediate Accounting	4	0	4
BU 208		Cost Accounting	4	0	4
BU 253		Personnel Administration	3	0	3
LA 810		Psychology	3	0	3
		Elective approved by the department	3	0	3
			17	0	17
Term 6					
BU 206		Intermediate Accounting	4	0	4
BU 210		Cost Accounting	4	0	4
BU 223		Internal Auditing	4	0	4
BU 241		Computer Programming—RPG	2	2	3
LA 804		Effective Speaking	3	0	3
			17	2	18

Marketing Management Option

2nd YEAR

		Hours Per Week		
Term 4		Class	Lab	Credits
BU 253	Personnel Administration	3	0	3
BU 255	Principles of Management	3	0	3
BU 287	Salesmanship	4	0	4
BU 298	Marketing	3	0	3
LA 804	Effective Speaking	3	0	3
		16	0	16
Term 5				
BU 252	*Business Report Writing	3	0	3
BU 288	Advertising	3	0	3
BU 289	Management: A Behavioral Approach	3	0	3
BU 296	Credit	3	0	3
LA 810	*Purchasing	3	0	3
		15	0	15
Term 6				
BU 221	*Computer Programming—Fortran	2	2	3
or			or	
BU 300	*Purchasing	3	0	3
BU 294	Advertising	4	0	4
BU 295	Marketing Research	3	0	3
BU 299	Retailing	3	0	3
LA 830	Sociology	3	0	3
		15-16	2-0	16

*Some of Marketing students scheduled in Term 5 and some in Term 6.

Business Administration Option

2nd YEAR

				Hours Per Week		
				Class	Lab	Credits
Term 4						
BU 204	***Intermediate Accounting or					
	BU 221 Computer Programming—Fortran ...	4-2	0-2	4-3		
BU 207	***Cost Accounting or Liberal Arts Elective	4-3	0	4-3		
LA 145	Development of Western Civilization	3	0	3		
MA 120	Finite Mathematics for Business	3	0	3		
PH 113	Physical Science	3	2	4		
				17-14	2-4	18-16
Term 5						
BU 205	***Intermediate Acctg. or BU 298 Marketing....	4-3	0	4-3		
BU 208	***Cost Accounting or Liberal Arts elective	4-3	0	4-3		
LA 146	Development of Western Civilization	3	0	3		
MA 121	Finite Mathematics for Business	3	0	3		
PH 114	Physical Science	3	2	4		
				17-15	2	18-16
Term 6						
BU 206	***Intermediate Accounting or BU 289					
	Management: A Behavioral Approach	4-3	0	4-3		
BU 210	***Cost Accounting or Liberal Arts elective	4-3	0	4-3		
LA 147	Development of Western Civilization	3	0	3		
MA 122	Introduction to Calculus for Business	3	0	3		
PH 115	Physical Science	3	2	4		
				17-15	2	18-16

***Student's choice must consist of three-term sequences.



Instructor and students using the IBM 360/20 computer to solve an accounting problem.

Secretarial student taking dictation in an office workshop on the campus.



SECRETARIAL SCIENCES

1st YEAR

for curriculum options in

- Engineering Secretary
- Executive Secretary

			Hours Per Week		
			Class	Lab	Credits
Term 1					
BU 101	Accounting		4	0	4
BU 141	Business Mathematics		3	0	3
BU 161	*Typewriting or Alternate		0-3	5-0	2-3
BU 164	**Shorthand or Alternate		2-3	3-0	3
LA 801	English		3	0	3
Term 2			12-16	8-0	15-16
BU 102	Accounting		4	0	4
BU 162	Typewriting		0	5	2
BU 165	Shorthand		2	3	3
BU 167	Transcription		2	3	3
LA 802	English		3	0	3
PH 101	Physical Science		2	2	3
Term 3			13	13	18
BU 103	Accounting		4	0	4
BU 163	Typewriting		2	3	3
BU 166	Shorthand		2	3	3
LA 803	English		3	0	3
MA 105	Mathematics		3	0	3
PH 102	Physical Science (Engineering Secretary)		2	2	3
	or			or	
BU 151	Business English (Executive Secretary)		3	0	3
			16-17	6-8	19

*If a student has earned a Regents unit in Typewriting of 80% or better, an alternate course chosen by the department will be assigned.

**If a student has earned a Regents unit in Shorthand II or Transcription of 80% or better, an alternate course chosen by the department will be assigned.

Engineering Secretary Option

2nd YEAR

		Hours Per Week		
		Class	Lab	Credits
Term 4				
BU 130	Introduction to Electronic Data Processing ...	3	0	3
BU 147	Business Law	3	0	3
BU 151	Business English	3	0	3
BU 253	Personnel Administration	3	0	3
BU 260	Engineering Shorthand	2	3	3
CH 104	Chemistry	3	2	4
		17	5	19
Term 5				
BU 261	Engineering Shorthand	2	3	3
BU 263	Technical Typewriting	2	3	3
BU 274	Office Practice	2	4	4
LA 804	Effective Speaking	3	0	3
MT 128	Survey of Engineering Laboratories	2	3	3
		11	13	16
Term 6				
BU 275	Office Practice	2	4	4
BU 280	Speed Shorthand	2	3	3
LA 810	Psychology	3	0	3
LA 820	Economics	3	0	3
	Elective	3	0	3
		13	7	16

Executive Secretary Option

2nd Year

		Hours Per Week		
		Class	Lab	Credits
Term 4				
BU 147	Business Law	3	0	3
BU 253	Personnel Administration	3	0	3
BU 270	Executive Shorthand	2	3	3
LA 255	Economics	3	0	3
LA 810	Psychology	3	0	3
	*Elective	3-4	0-1	3-4
		17-18	3-4	18-19
Term 5				
BU 271	Executive Shorthand	2	3	3
BU 274	Office Practice	2	4	4
LA 256	Economics	3	0	3
LA 804	Effective Speaking	3	0	3
	*Elective	3-4	0-1	3-4
		13-14	7-8	16-17
Term 6				
BU 130	Introduction to Electronic Data Processing ...	3	0	3
BU 275	Office Practice	2	4	4
BU 280	Speed Shorthand	2	3	3
LA 257	Economics	3	0	3
	*Elective	3-4	0-1	3-4
		13-14	7-8	16-17

*Students can elect a foreign language.

CHEMICAL TECHNOLOGY

The Chemical Technology curriculum is designed to provide a background which will lead to gainful employment. Chemical technicians of both sexes have filled a vital manpower need in companies and organizations where background in various areas of chemistry is necessary or desirable. The expansion of products and uses of chemistry require chemical technicians to perform much essential work.

Employers of chemical technicians include IBM, GAF, Eastman Kodak, Allied Chemical Corp., DuPont, Norwich Pharmacal Corp., GE, American Cyanamid, Union Carbide, Bristol Laboratories, Warner-Lambert, government agencies, hospitals and educational institutions.

Entry positions are usually in some type of laboratory. The laboratory may be a research, development, process or quality control, or an analytical lab, or in a pilot plant. In these positions a chemical technician may work for a senior staff member or be a member of a group working in a particular area. Experienced chemical technicians have become supervisors, group leaders, technical salesmen and servicemen. Many have progressed far enough to work independently and have acquired professional status.



Instructor and students working in the general chemistry laboratory.

Chemical Technology

1st Year

		Hours Per Week		
Term 1		Class	Lab	Credits
CH	121	Chemistry	3	4
MA	140	College Algebra and Trigonometry	4	4
		or	or	
MA	150	Principles of Mathematics	4	4
		or	or	
CS	110	Elements of Technical Mathematics	5	5
LA	801	English	3	3
PH	143	Physics (Mechanics)	3	4
		or	or	
LA		Elective	3	3
AD	100	Orientation	1	0
Term 2		14-15	3-5	15-16
CH	122	Chemistry	3	4
MA	141	Calculus	3	3
		or	or	
MA	151	Principles of Mathematics	4	4
		or	or	
CS	111	Elements of Technical Mathematics	5	5
LA	802	English	3	3
PH	144	Physics (Mechanics, Heat, Sound, Light)	4	5
		or	or	
PH	106	Physics	2	3
Term 3		13-14	5	15-16
CH	123	Chemistry	3	4
MA	142	Calculus	3	3
		or	or	
MA	152	Principles of Mathematics	4	4
		or	or	
CS	112	Elements of Technical Mathematics	5	5
LA	803	English	3	3
PH	145	Physics (Electricity and Magnetism)	3	4
		or	or	
PH	107	Physics	2	3
		12-13	5	14-15

Students' selection of the appropriate course in each option above must be approved by the department chairman and must be such as to give him either of the two credit totals listed for each term.

2nd YEAR

Term 4				
CH	220	Organic Chemistry	3	5
CH	228	Analytical Chemistry	3	5
CH	265	Chemical Processes	3	5
LA		Social Science Elective	3	3
Term 5		12	12	18
CH	221	Organic Chemistry	3	5
CH	226	Instrumental Analysis	2	5
CH	266	Chemical Processes	3	5
LA		Social Science Elective	3	3
Term 6		11	14	18
CH	222	Organic Chemistry	3	5
CH	227	Instrumental Analysis	2	5
CH	267	Chemical Processes	3	5
LA		Social Science Elective	3	3
		11	14	18

CIVIL TECHNOLOGY

The construction industry, considering all related goods and services such as manufacturing and transportation, is the largest industry in the county. The activity in construction has pointed up a shortage of technical personnel in this field. Civil Technology has been designed to help alleviate this shortage.

Graduates of this program begin their careers as engineering technicians and are qualified to work as assistants to professional and supervisory persons such as engineers, architects, construction superintendents, surveyors and contractors. Graduates may find employment in such fields as sales of building materials and construction equipment, purchasing, testing of construction materials, drafting, estimating, specification writing, and inspection. Excellent promotion and advancement opportunities exist for graduates of this curriculum.

This is an ECPD accredited Engineering Technology curriculum. ECPD is the Engineers Council for Professional Development.

1st YEAR

			Hours Per Week		
			Class	Lab	Credits
Term 1					
AD 100	Orientation		1	0	0
CH 104	†Chemistry		3	2	4
LA 801	English		3	0	3
MA 140	¶College Algebra and Trigonometry		4	0	4
MT 110	††Engineering Drawing		0	3	1
MT 130	†††Manufacturing Processes		2	2	3
PH 143	Physics		3	2	4
			16	9	19

†Students who have passed a high school chemistry regents with 80% or better or CS 140 Chemistry with a C or better will not be required to take CH 104 Chemistry. Another course may be substituted with department approval.

††Students who have successfully completed the Collegiate Studies sequence in Engineering Drawing will not be required to take MT 110 Engineering Drawing.

†††Waiver of this course is subject to department approval.

Term 2					
CT 110	Architectural Drawing		0	3	1
CT 119	Plain Concrete		2	3	3
LA 802	English		3	0	3
MA 141	¶Calculus		3	0	3
MT 155	Applied Mechanics		3	0	3
PH 144	Physics		4	2	5
			15	8	18

Term 3					
CT 140	Surveying		3	6	5
CT 153	Strength of Materials		3	3	4
CT 211	Architectural Drawing		0	3	1
	¶¶Elective		0-3	0-3	0-4
LA 803	English		3	0	3
MA 142	¶Calculus		3	0	3
			12-15	12-15	16-20

¶Students whose mathematics background is deemed adequate by the Admissions Office may start their mathematics sequence with MA 141. They would then take MA 142 and MA 240 in the second and third terms.

¶¶ET 141 Electricity or PH 145 Physics (Electricity and Magnetism). Approval of Department required for PH 145 Physics.

Civil Technology student
reading the vernier on a
transit.



Civil Technology

2nd YEAR

		Hours Per Week		
Term 4		Class	Lab	Credits
CT 141	Surveying	2	6	4
CT 212	Architectural Drawing	0	3	1
CT 254	Strength of Materials	3	0	3
AD 120	Computer Programming	2	2	3
LA 830	Sociology	3	0	3
	*Elective	0-3	0	0-3
		10-13	11	14-17
Term 5				
CT 220	Reinforced Concrete Design	3	3	4
CT 250	Estimating & Construction Planning	3	3	4
CT 283	Route Surveying & Highway Design	3	3	4
LA 820	Economics	3	0	3
	**Elective	0-3	0-3	0-3
		12-15	9-12	15-18
Term 6				
CT 221	Structural Steel Design	3	3	4
CT 230	Building Design	3	3	4
CT 270	Soil Mechanics	3	3	4
LA 810	Psychology	3	0	3
	***Elective	0-3	0-3	0-4
		12-15	9-12	15-19

*CT 260 Hydraulics or MA 240 Calculus.

**CT 274 Environmental Sanitation or MA 241 Calculus.

***CT 273 Environmental Sanitation or MA 242 Calculus.

DENTAL HYGIENE

Dental hygienists are in great demand in this highly respected profession. Their services are performed in private dental practices, school systems, hospitals, industry and institutional dental clinics. Also in research programs, schools of dental hygiene, public health agencies, the Peace Corps and on the ship S. S. Hope. Regardless of the type of employment, one of the most important activities is that of constantly being a dental health educator.

Students learn to perform clinical, educational and assisting duties in a department that has the most modern equipment. The dental hygienist, who always works under the supervision of a dentist, is the only member of the auxiliary group in the dental profession who is licensed to perform services directly in the mouth of a patient; therefore, good manual dexterity is necessary. Sincere interest in working with people, good health, pleasing personality and good moral character are also important qualifications.

Dental hygiene duties, in compliance with respective state laws, include (a) the removal of deposits and stains on the teeth, (b) the application of fluoride solutions to the teeth, (c) individual and group dental health instruction, (d) exposing, processing and mounting of dental X-ray films, and (e) assisting the dentist at the dental chair and in the laboratory.

All dental hygienists must pass a licensing examination (written and practical) in the state in which they wish to practice. A written National Board Examination is currently accepted by 47 states, the District of Columbia and the Virgin Islands.

Graduates of Broome Community College's Dental Hygiene curriculum may continue to study for a Bachelor of Science Degree in Health Education, for which a formal arrangement has been made with the State University College at Cortland, New York. Credits are also acceptable for transfer to other degree-granting colleges in the country.

The Dental Hygiene Department is equipped to handle limited numbers of students, so that applications should be submitted to the College at the beginning of the senior year of high school. It is also recommended that applicants take the Dental Hygiene Aptitude Test.

The curriculum is fully accredited by the Council on Dental Education of the American Dental Association.

Freshmen Dental Hygiene students learning how to use dental instruments on manikins.



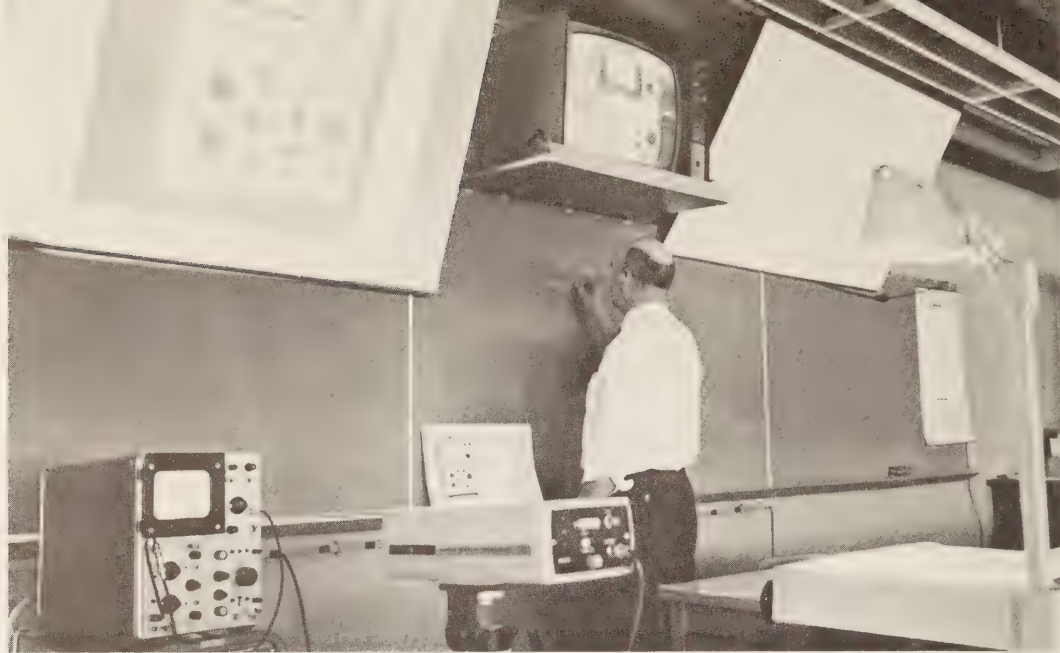
Dental Hygiene

1st YEAR

		Hours Per Week		
		Class	Lab	Credits
Term 1				
DH 100	Dental Hygiene and Ethics	2	0	2
DH 140	Oral Anatomy	2	2	3
BI 111	First Aid	1	0	1
BI 171	Anatomy and Physiology	3	2	4
CH 101	Chemistry	3	2	4
LA 801	English	3	0	3
		14	6	17
Term 2				
DH 101	Dental Manikin Practice	1	4	3
DH 141	Oral Anatomy	2	2	3
BI 172	Anatomy and Physiology	3	2	4
CH 102	Chemistry	3	2	4
LA 802	English	3	0	3
		12	10	17
Term 3				
DH 103	Clinical Dental Hygiene	1	3	2
DH 158	Dental Office Practice	2	2	3
DH 244	Preventive Dentistry	3	0	3
BI 159	Microbiology	3	4	5
BI 176	Dental Histology	3	2	4
LA 803	English	3	0	3
		15	11	20

2nd YEAR

Term 4				
DH 204	Clinical Dental Hygiene	1	12	4
DH 251	Dental Radiography	1	2	2
DH 254	General and Oral Pathology	2	0	2
DH 260	Dental Laboratory Practice	2	2	3
DH 283	Dental Health Education	3	0	3
LA 810	Psychology	3	0	3
		12	16	17
Term 5				
DH 205	Clinical Dental Hygiene	1	12	4
DH 252	Clinical Dental Radiography	0	2	1
DH 255	General and Oral Pathology	2	0	2
DH 261	Nutrition	3	0	3
DH 267	Anesthesia	2	0	2
DH 284	Dental Pharmacology	3	0	3
DH 287	Dental Pharmacology	2	0	2
		13	14	17
Term 6				
DH 206	Clinical Dental Hygiene	1	12	4
DH 253	Clinical Dental Radiography	0	2	1
DH 268	Special Dental Practice	3	0	3
LA 804	Effective Speaking	3	0	3
LA 820	Economics	3	0	3
LA 830	Sociology	3	0	3
		13	14	17



Instructor conducting an electronics laboratory briefing, using closed circuit television, an overhead transparency and the actual oscilloscope.

ELECTRICAL TECHNOLOGY

Few people are unaware of what an important part electricity plays in our daily lives, in conveniences like television, air-conditioning, lighting and innumerable kitchen appliances.

But electricity is also one of the cornerstones upon which space exploration and our national defense are built. The amazing development of radar, electronics and solid state hardware is based on electricity.

The rapid advances in electronics and related electrical fields have created a need for engineers, engineering technicians and specialists to meet future needs.

Two-year technical college programs, like this one, have become increasingly important in preparing better trained men and women for work in the electrical field. These colleges train men and women to do highly specialized technical work. Although few realize it, there is an excellent place for women in the electrical field.

Job opportunities are in such areas as electrical design drafting, technical sales, electronic computers and medical electronics. Graduates can also find employment in power generation and distribution, communications and the design and evaluation of electrical equipment.

Some of the companies that have hired Broome Community College Electrical Technology graduates in recent years are New York State Electric and Gas Corp., IBM, Xerox, Eastman Kodak, GAF and DuPont.

Although the principal objective of this curriculum is to prepare students for employment immediately following graduation, many graduates have successfully transferred to four-year colleges in Bachelor of Technology programs in the past few years.

This is an ECPD accredited Engineering Technology curriculum. ECPD is the Engineers Council for Professional Development.

Electrical Technology

1st YEAR

		Hours Per Week		
		Class	Lab	Credits
Term 1				
ET 101	Electrical Shop	1	3	2
ET 120	Electrical Circuits	4	3	5
ET 130	Engineering Drawing	0	3	1
AD 100	Orientation	1	0	0
LA 801	English	3	0	3
MA 140	*College Algebra and Trigonometry	4	0	4
PH 143	Physics (Mechanics)	3	2	4
		16	11	19
Term 2				
ET 102	Electrical Shop	1	3	2
ET 113	Electricity and Magnetism	3	3	4
ET 121	Electrical Circuits	4	3	5
ET 131	Engineering Drawing	0	3	1
LA 802	English	3	0	3
MA 141	*Calculus	3	0	3
		14	12	18
Term 3				
ET 103	Electrical Shop	0	3	1
ET 250	Electronics	4	3	5
AD 120	Fundamentals of Computer Programming	2	2	3
LA 803	English	3	0	3
MA 142	*Calculus	3	0	3
PH 144	Physics (Heat, Light and Sound)	4	2	5
		16	10	20

2nd YEAR

Term 4				
ET 223	Network Analysis	4	0	4
ET 230	Electrical Design	0	3	1
ET 240	Electrical Machines	4	3	5
ET 251	Electronics	4	3	5
ET 260	Principles of Industrial Management	3	0	3
ET 265	Principles of Solid State Devices	2	0	2
		17	9	20
Term 5				
ET 241	Electrical Machines	4	3	5
ET 252	Electronics	4	3	5
ET 258	Introduction to System Logic	2	2	3
LA 810	Psychology	3	0	3
Required Elective:		3	0	3
ET 264	Microcircuits			
MA 241	Calculus			
		16	8	19
Term 6				
ET 231	Electrical Design	0	3	1
ET 242	Automatic Controls	4	3	5
ET 253	Electronics	4	3	5
LA 820	Economics	3	0	3
LA 830	Sociology	3	0	3
		14	9	17

*Students whose mathematics background is deemed adequate by the Admissions Office may start their mathematics sequence with MA 141. They would then take MA 142 and MA 240 in the second and third terms.

ENGINEERING SCIENCE

The level of work covered in the Engineering Science curriculum is primarily designed to prepare graduates to continue their studies in the engineering field in four-year colleges and universities. But there are also employment opportunities for qualified graduates.

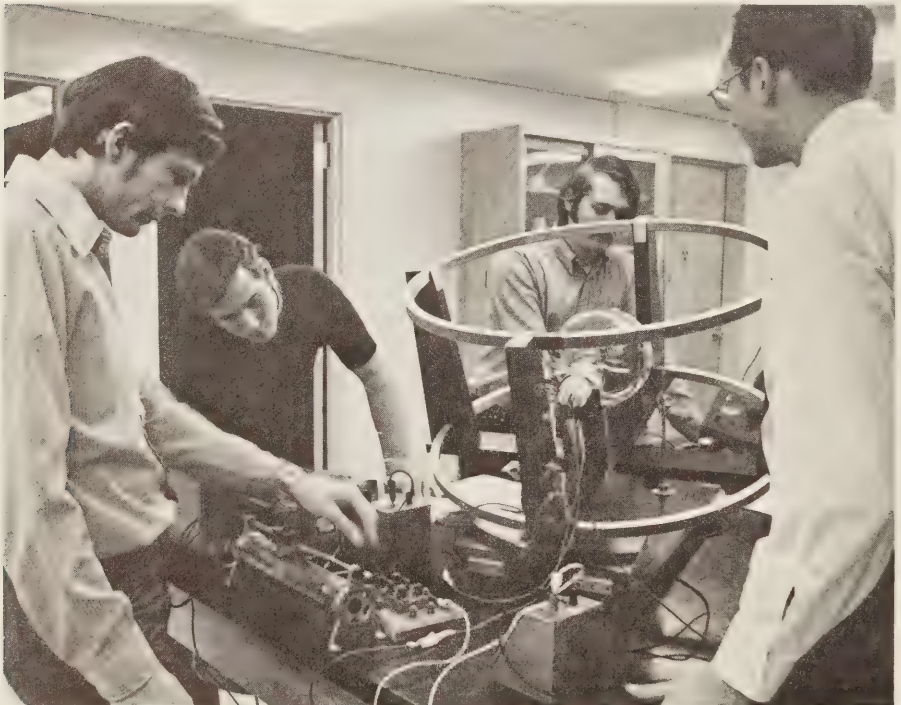
The emphasis in this program is on mathematics and physics, so that graduates can transfer to four-year schools into the junior year in physics, engineering and mathematics.

Broome Community College is a member of the New York State Two-Year/Four-Year Engineering College Curriculum Study Committee. This organization's purpose is to facilitate the transfer to four-year colleges, with junior-year standing, of two-year college graduates from engineering science programs. Rochester Polytechnic Institute (RPI), Clarkson, Cornell, Syracuse, Union and State University at Buffalo are among the members of the Two-Year/Four-Year Engineering College Curriculum Study Committee who have agreed to accept those two-year college graduates who have been recommended by their Engineering Science departments.

Some of the job opportunities for those who prefer to seek immediate employment lie in the engineering technician field, for example as assistants to engineers in research and development, and positions involving the application of mathematics.

In order for a high school graduate to qualify for admission to the Engineering Science curriculum, he or she must have shown high academic potential on the admission tests, and demonstrated superior ability in science and mathematics in high school.

Students entering Broome Community College who wish to continue studying for their bachelors' degrees in engineering, applied mathematics or physics will find this the most appropriate course of study.



Engineering Science students performing an experiment in the radiation laboratory.

Engineering Science

1st YEAR

			Hours Per Week		
			Class	Lab	Credits
Term 1					
AD 112	Computer Programming for Engineers	2	2	3	
CH 135	Chemistry	3	3	4	
LA 130	English Composition	3	0	3	
MA 170	Calculus with Analytic Geometry	4	0	4	
PH 170	Physics (Mechanics)	3	3	4	
		15	8	18	
Term 2					
CH 136	Chemistry	3	3	4	
LA 131	English Composition	3	0	3	
MA 171	Calculus with Analytic Geometry	4	0	4	
PH 171	Physics (Mechanics and Heat)	3	3	4	
MT 103	Engineering Drawing	0	6	2	
		13	12	17	
Term 3					
CH 137	Chemistry	3	3	4	
LA 132	English Composition	3	0	3	
MA 172	Calculus with Analytic Geometry	4	0	4	
PH 172	Physics (Electricity and Magnetism)	3	3	4	
MT 112	Descriptive Geometry	1	2	2	
		14	8	17	

2nd YEAR

Term 4					
LA 255	Economics	3	0	3	
MA 270	Calculus with Analytic Geometry	4	0	4	
PH 192	Statics	4	0	4	
PH 270	Physics (Light and Sound)	3	3	4	
MT 270	Engineering Materials	3	0	3	
		17	3	18	
Term 5					
LA 256	Economics	3	0	3	
MA 271	Differential Equations	3	0	3	
PH 210	Electrical Circuits	3	3	4	
PH 271	Physics (Atomic)	3	3	4	
PH 290	Dynamics	4	0	4	
		16	6	18	
Term 6					
LA 257	Economics	3	0	3	
	or		or		
PH 280	Astronomy	3	3	4	
MA 272	Differential Equations	3	0	3	
PH 211	Electrical Circuits	3	3	4	
PH 272	Physics (Nuclear)	3	3	4	
MT 271	Engineering Materials	3	0	3	
		15	6-9	17-18	

ENVIRONMENTAL HEALTH TECHNOLOGY

Environmental Health Technology is the science of controlling those factors in the physical environment which may exert a harmful effect on man's health. Its scope includes the prevention of communicable diseases and of environmental hazards. It seeks to accomplish these objectives by controlling air and water pollution, liquid and solid waste disposal, housing, milk and food sanitation, industrial hygiene and ionizing radiation.

The environmental health technician is a member of a professional team devoted to improving our living conditions. As such he will be one who assists the sanitary engineer, the public health scientist, the sanitarian, physicians and veterinarians employed in the health field.

The program is designed to provide the students with a broad background of environmental and sanitary sciences emphasizing the practical application of the subjects. In addition, the program deals with the ethical and legal responsibilities of public health personnel and the current status of area and national pollution control programs.

In addition to his education in the classroom and laboratory on campus, the student's training includes inspection tours of milk and food processing plants, water and waste water treatment facilities, as well as radiation installations and hospitals.

The curriculum was devised so that if a student wishes to further his college work he may do so. At the same time the student begins immediately with specialty courses which will prepare him for employment upon graduation.

Graduates receive the Associate in Applied Science degree and are qualified for immediate employment in both the public and private sectors. The many job opportunities include positions in health departments, the dairy and food industries, engineering firms, housing agencies and public health laboratories.

The curriculum is approved by the Public Health Council of the State Health Department. Therefore, graduates can become environmental health technicians in health departments without the usual year of traineeship prior to taking the civil service examination.



Instructor and Environmental Health Technology students measuring the rate of stream flow in a limnology class.

Environmental Health Technology

1st YEAR

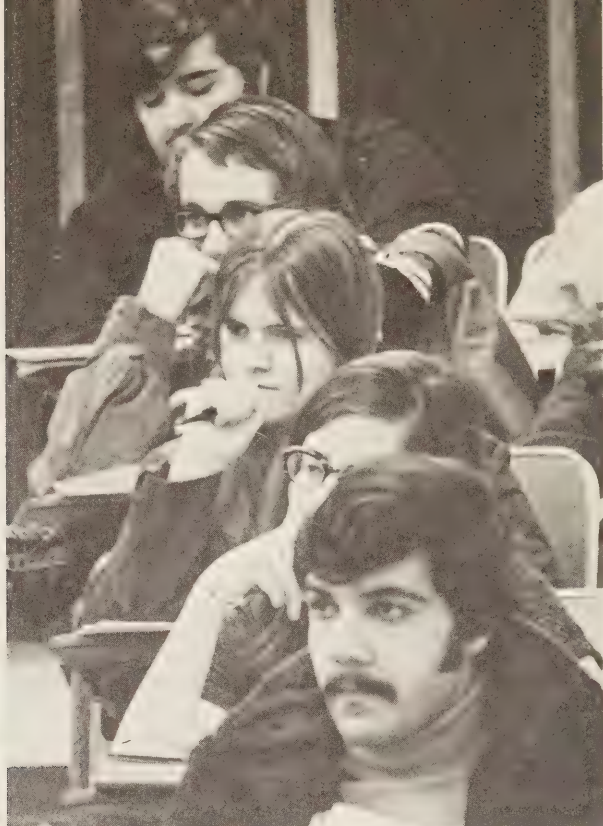
		Hours Per Week			
		Class	Lab	Credits	
Term 1					
BI	100	Ethics and Orientation	0	2	1
BI	136	Zoological Principles	3	3	4
CH	132	General Chemistry	3	3	4
LA	801	English	3	0	3
MA	101	*Mathematics	3	0	3
MT	110	**Engineering Drawing	0	3	1
		12	11	16	
Term 2					
EH	112	Environmental Health	2	0	2
CH	133	General Chemistry	3	3	4
LA	802	English	3	0	3
MA	105	Mathematics	3	0	3
PH	106	Physics	2	2	3
		13	5	15	
Term 3					
EH	201	Atmospheric Pollution Control	3	3	4
BI	106	Limnology	3	3	4
CH	134	General Chemistry	3	3	4
LA	803	English	3	0	3
PH	107	Physics	2	2	3
		14	11	18	

2nd YEAR

Term 4					
EH	103	Milk Sanitation	3	3	4
EH	204	Water Supply and Pollution Control	3	3	4
BI	250	Microbiology	3	4	5
LA	820	Economics	3	0	3
PH	110	Physics	2	2	3
			14	12	19
Term 5					
EH	202	Community Sanitation	3	3	4
EH	203	Food Sanitation	3	3	4
EH	206	Radiological Health	2	3	3
BI	254	Microbiology	2	6	4
LA	804	Effective Speaking	3	0	3
			13	15	18
Term 6					
EH	205	Water Supply and Pollution Control	3	3	4
EH	208	Environmental Health Administration	2	2	3
BI	207	Parasitology	3	3	4
LA	810	Psychology	3	0	3
LA	830	Sociology	3	0	3
			14	8	17

*MA 101 Mathematics will not be required if the student has had satisfactory prior training. Alternate course will be substituted.

**Students who have passed CS 132 Engineering Drawing with a C or better will not be required to take MT 110 Engineering Drawing.



LIBERAL ARTS AND SCIENCES

The Liberal Arts curriculum is a two-year university-parallel program designed especially for those who wish to continue their college education at a four-year school. It offers an Associate in Arts degree.

The required and elective courses combine to give the students essential credits in such areas as mathematics, language, science, social studies and the humanities.

Students finishing this curriculum, its science option or its other variations will have a breadth of education that prepares them to transfer to four-year college programs leading to many professional careers. The science option, for example, is excellent for those planning careers in forestry, chemistry, biology or other scientific areas. Those aspiring to become teachers, doctors, dentists, lawyers, pharmacists or law-enforcement officers will find alternatives in the Liberal Arts curriculum designed especially for them.

Students should be aware that many of these alternative curriculums presume a high level of preparation in the secondary school, and they should consult with faculty advisors or counselors when there is doubt about the adequacy of their pre-college academic background.

Students who have identified the four-year college to which they plan to transfer should make sure that their program at Broome Community College is adjusted to be compatible with the curriculum at that upper-division college. For example, a foreign language is required at some four-year schools, though not at all. The decision to take a language at BCC might thus be influenced by whether it is required at the college to which one intends to transfer.

Liberal Arts and Sciences

1st YEAR

		Hours	Per	Week	Credits
		Class	Lab	Per	Term
Terms 1, 2 and 3					
LA 130, 131, 132	English Composition	3	0	3	
LA 145, 146, 147	Western Civilization	3	0	3	
	or		or		
LA 148, 149, 150	United States History	3	0	3	
*Mathematics	or Elective	3-4	0	3-4	
**Science		3	3	4	
LA 193, 194, 195	Philosophy or Foreign Language	3-4	0-1	3-4	
PE 100	Physical Education	2	0	1	
		17-19	3-4	17-19	

*Students who have completed 3½ units of secondary school mathematics (through Advanced Algebra) may take a one-year sequence in Calculus with Analytic Geometry or a non-mathematics elective.

**Biology, chemistry, physics or physical science. Students may defer this course until the second year and choose an elective instead.

2nd YEAR

Terms 4, 5 and 6					
Literature (English, American or Western World)	3	0	3		
Social Science Elective	3	0	3		
†3 Electives	9-12	0	9-12		
Physical Education (Elective)	0-2	0	0-1		
		15-20	0	15-19	

†Students must take enough elective hours to fulfill the degree requirement of a minimum of 96 credit hours.

NOTE—Students' choice of courses must consist of three-term sequences.

MODEL CAREER PROGRAMS

The following programs are shown as typical "models" for the careers indicated and should not be regarded as inflexible in the courses cited. These models are designed to give a student a chance to earn the Associate in Arts degree at Broome, so that he can continue at a four-year college or university in pursuit of baccalaureate degree in the particular field of his choice.

Pre-Law

1st Year
 Science
 English Composition
 Western Civilization
 Foreign Language
 Mathematics
 Physical Education

2nd Year
 Political Science
 Sociology
 Psychology
 Literature
 1-Term courses:
 Effective Speaking
 American Economic History
 Logic
 Physical Education (elective)

Police Science

1st Year

*Police Science courses
English Composition
Philosophy
Sociology
U. S. History
Physical Education

2nd Year

*Police Science courses
Science
Psychology
Mathematics or elective
Literature
Physical Education (Elective)

*These courses are given only in the evening and most carry 2 semester credits, in contrast to quarter credits for all the other courses.

Liberal Arts—Science Option

This option is especially appropriate for students whose objectives are to study chemistry, biology, forestry or other science programs at a four-year college after graduation from Broome.

1st YEAR

	Hours Per Class	Week Lab	Credits Per Term
Terms 1, 2 and 3			
LA 130, 131, 132 English Composition	3	0	3
LA 145, 146, 147 Development of Western Civilization..	3	0	3
or		or	
LA 148, 149, 150 United States History	3	0	3
*Mathematics or Elective	3-4	0	3-4
**Science	3	3	4
**Science or Humanities Elective	3-4	0-3	3-4
Physical Education	2	0	1
	17-19	3-6	17-19

*Students with less than 3½ units of secondary school mathematics (through Advanced Algebra) will take MA 150, 151, 152. Those who have completed the 3½ units will take MA 160, 161, 162, or a non-math elective.

**The first science course may be a sequence in biology, chemistry or physics. The second science course may be from these same choices, or the student may choose as an elective a foreign language, English or a humanities sequence.

2nd YEAR

Terms 4, 5 and 6

Literature (English, American or Western World)	3	0	3
Social Science	3	0	3
Science	3	3	4
†2 Electives	6	0-3	6-8
Physical Education (Elective)	0-2	0	0-1
	17	3-6	16-19

†Students may elect 2 courses from the following areas:

Biology, chemistry, physics, mathematics, foreign language, English or humanities.

Liberal Arts – Science Option

MODEL CAREER PROGRAMS

The following programs shown here are additional typical “models” for the careers indicated and again should not be regarded as inflexible in the courses cited. They are also designed to give a student a chance to earn the Associate in Arts degree at Broome, so that he can continue at a four-year college or university in pursuit of a baccalaureate degree in the particular field of his choice.

Pre-Pharmacy

1st Year

Biology
Chemistry
English Composition
Development of Western Civilization
Calculus with Analytic Geometry
Physical Education

2nd Year

Organic Chemistry
Philosophy
Economics
Physics
Literature
Physical Education (Elective)

Pre-Medicine or Pre-Dental

1st Year

Biology
Chemistry
English Composition
Calculus with Analytic Geometry
History
Physical Education

2nd Year

Organic Chemistry
Psychology
Physics
Literature
Foreign Language
Physical Education (Elective)

The “model” curriculum offerings shown in this section are not intended to be all-inclusive. Students with other than the cited objectives may still find the Liberal Arts and Sciences curriculum most appropriate, as it can enable graduates to transfer to many four-year colleges and universities.



MECHANICAL TECHNOLOGY

The nature of industry today makes it more important than ever that applicants for employment have a high degree of technical competence. The purpose of the Mechanical Technology curriculum is to prepare qualified young people of our community to fill the need in industry and business for engineering technicians in the mechanical field.

Initial employment opportunities are in the area between the skilled craftsman and the professional engineer, with the emphasis in the direction of the engineer.

Recent graduates have been employed in such areas as design drafting, product design, metallurgical laboratories, quality control, time study, purchasing, technical writing and process planning, to name just a few. Some of the companies hiring recent graduates are New York State Electric and Gas Corp., Fairbanks Co., Eastman Kodak, Xerox and Union Carbide. Many graduates accept positions far beyond the boundaries of New York State, even though the attempt is made to satisfy the needs of industry in Broome County.

This is an ECPD accredited Engineering Technology curriculum. ECPD is the Engineers Council for Professional Development.



Instructor demonstrating the calibration of a pyrometer in a metallurgy class.

Mechanical Technology

1st YEAR

		Hours Per Week		
		Class	Lab	Credits
Term 1				
MT 110	*Engineering Drawing	0	3	1
MT 130	Manufacturing Processes	2	2	3
AD 100	Orientation	1	0	0
LA 801	English	3	0	3
LA 810	Psychology	3	0	3
MA 140	**College Algebra and Trigonometry	4	0	4
PH 143	Physics	3	2	4
Term 2		16	7	18
MT 111	Eng. Drawing and Descriptive Geometry	1	3	2
MT 131	†Manufacturing Processes	1	3	2
MT 155	Applied Mechanics	3	0	3
LA 802	English	3	0	3
MA 141	**Calculus	3	0	3
PH 144	Physics	4	2	5
		15	8	18
Term 3				
MT 132	Manufacturing Processes	1	3	2
MT 156	Applied Mechanics	3	0	3
CH 104	***Chemistry	3	2	4
LA 803	English	3	0	3
MA 142	**Calculus	3	0	3
PH 145	Physics	3	2	4
		16	7	19

2nd YEAR

Term 4				
MT 240	††Precision Measurement	1	3	2
MT 257	Strength of Materials	3	3	4
MT 261	Fluid Mechanics	3	0	3
AD 120	Computer Programming	2	2	3
ET 127	Electricity	3	3	4
LA 830	Sociology	3	0	3
		15	11	19
Term 5				
MT 165	Metallurgy	3	3	4
MT 220	Mechanical Design	2	3	3
MT 260	Thermodynamics	3	3	4
MT 267	Statistical Quality Control	3	2	4
ET 128	Electricity	3	3	4
		14	14	19
Term 6				
MT 135	Materials and Processes	3	3	4
MT 221	Mechanical Design	3	3	4
MT 262	Thermodynamics	3	3	4
ET 129	Electronics	3	3	4
LA 820	Economics	3	0	3
		15	12	19

*Students who have successfully completed the Collegiate Studies sequence in Engineering Drawing will not be required to take MT 110 Engineering Drawing.

**Students whose mathematics background is deemed adequate by the Admissions Office may start their mathematics sequence with MA 141. They would then take MA 142 and MA 240 in the second and third terms.

***Students who have passed a high school chemistry regents with 80% or better or CS 140 with a "C" or better will not be required to take CH 104 Chemistry. Another course may be substituted by the department.

†Students with prior machine-shop practice may substitute LA 820 Economics, with approval of the department.

††Students who have maintained a "C" grade level in all prior mathematics courses may elect to substitute an additional mathematics course, with approval of the department.

MEDICAL LABORATORY TECHNOLOGY

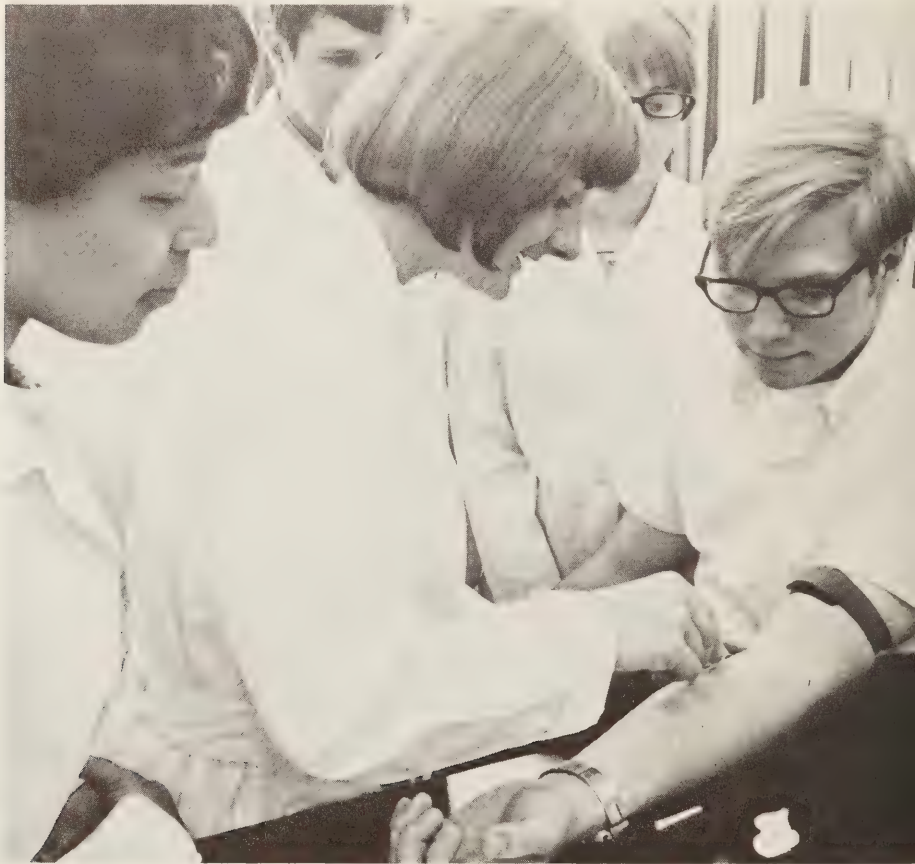
The demand for medical laboratory technicians continues to increase, with the majority finding employment in hospital clinical laboratories and in analytical, control and research laboratories of chemical and pharmaceutical companies. Others are employed as research assistants at large universities and still others have continued their higher education toward the baccalaureate in this field at a four-year college or university.

To provide the background necessary for work in these areas, the program includes courses in chemistry, physiology, microbiology and physics.

Extensive laboratory work in bioanalytical procedures, chemical instrumentation, microbiological and immunological techniques and radiation physics helps to develop the skill needed for a wide range of job opportunities.

Work in the sciences is balanced by a program in general education including social sciences, English and mathematics.

Training in clinical laboratories provides the opportunity for the practical application of the college study.



Student performing a vena-puncture on another student in a blood chemistry laboratory.

Medical Laboratory Technology

1st YEAR

		Hours Per Week		
		Class	Lab	Credits
Term 1				
BI 100	Ethics and Orientation	0	2	1
BI 136	Zoological Principles	3	3	4
CH 121	Chemistry	3	3	4
LA 801	English	3	0	3
LA 810	Psychology	3	0	3
MA 101	*Mathematics	3	0	3
		15	8	18
Term 2				
BI 137	Anatomy and Physiology	3	3	4
CH 122	Chemistry	3	3	4
LA 802	English	3	0	3
MA 105	Mathematics	3	0	3
PH 106	Physics	2	2	3
		14	8	17
Term 3				
BI 134	Physiology (Bioanalysis)	0	3	1
BI 138	Anatomy and Physiology	3	3	4
CH 123	Chemistry	3	3	4
LA 803	English	3	0	3
PH 107	Physics	2	2	3
PH 110	Physics (Radiation)	2	2	3
		13	13	18

2nd YEAR

Summer Term

Term 4				
BI 233	Introduction to Clinical Physiology	2	0	2
BI 234	Physiology	2	6	4
BI 250	Microbiology	3	4	5
LA 820	Economics	3	0	3
LA 830	Sociology	3	0	3
		13	10	17

Fall Term

Clinical Laboratory Experience Graduation Requirement

Term 5				
BI 235	Physiology	2	4	4
BI 251	Microbiology	3	4	5
CH 224	Organic Chemistry	3	3	4
CH 226	Instrumental Analysis	2	6	5
		10	17	18

Term 6				
BI 240	Physiology	2	6	4
BI 252	Microbiology	2	4	4
CH 225	Organic Chemistry	2	3	3
CH 227	Instrumental Analysis	2	6	5
	Elective	3	0	3
		11	19	19

Summer Term

Clinical Laboratory Experience Graduation Requirement

*MA 101 Mathematics will not be required if the student has had satisfactory prior training. Alternate course will be substituted.



Students studying anatomy of the human brain in an anatomy and physiology laboratory.

MEDICAL OFFICE ASSISTANT

The medical office assistant has many employment opportunities in physician's offices and related fields. Broome Community College prepares young adults for this career by offering a specialized training that combines physician's office management with office laboratory procedures.

In addition to a basic knowledge of such skills as typing, accounting and office procedure, the assistant must know such technical subjects as anatomy, physiology, microbiology, pharmacology and chemistry. Courses in English, social sciences and mathematics provide general background. Laboratory procedures of a physician's office, such as urinalysis, hematology, electrocardiography and audiography, complete the program of studies.

Students gain practical experience in administrative responsibilities, clinical laboratory procedures and assisting the physician in medical offices two days a week during the last two terms of the senior year.

The program is accredited by the Council on Medical Education of the American Medical Association and by the American Association of Medical Assistants. Graduates may become fully certified by taking the Certified Medical Assistants Examination.

Medical Office Assistant

1st YEAR

		Hours Per Week		
		Class	Lab	Credits
Term 1				
BI 100	Ethics and Orientation	0	2	1
BI 136	Zoological Principles	3	3	4
BU 161	*Typewriting	0	5	2
CH 101	Chemistry	3	2	4
LA 801	English	3	0	3
MA 101	*Mathematics	3	0	3
		12	12	17
Term 2				
MR 102	Medical Terminology	2	2	3
BI 137	Anatomy and Physiology	3	3	4
BU 162	Typewriting	0	5	2
CH 102	Chemistry	3	2	4
LA 802	English	3	0	3
		11	12	16
Term 3				
MR 103	Terms and Transcription	2	4	4
BI 138	Anatomy and Physiology	3	3	4
BI 205	Medical Office Procedures	2	4	4
LA 803	English	3	0	3
MA 105	Mathematics	3	0	3
		13	11	18

*MA 101 Mathematics and BU 161 Typewriting will not be required if student has had satisfactory prior training and/or experience. Alternate courses will be substituted.

2nd YEAR

Term 4				
BI 204	Medical Office Procedures	2	4	4
BI 250	Microbiology	3	4	5
BU 276	Medical Typewriting	2	3	3
LA 810	Psychology	3	0	3
		10	11	15
Term 5				
BI 206	Medical Office Procedures	2	4	4
BI 244	**Directed Practice	0	16	4
BU 277	Advanced Medical Transcription	2	3	3
LA 804	Effective Speaking	3	0	3
LA 820	Economics	3	0	3
		10	23	17
Term 6				
BI 245	**Directed Practice	0	16	4
BI 285	Pharmacology	3	0	3
BU 151	Business English	3	0	3
BU 284	Medical Office Accounting	2	3	3
LA 830	Sociology	3	0	3
		11	19	16

**Directed Practice as in physician's office.

MEDICAL RECORD TECHNOLOGY

A medical record is the permanent report of a person's illness or injury, kept to preserve information of medical, scientific and legal value. The record includes all medical reports which describe how the patient's illness was diagnosed and treated. Medical records are needed to help doctors diagnose and treat future illness, to verify insurance claims, to plan hospitals, to inform the public health officials, and to aid researchers.

The medical record technician works in the medical record department of a hospital, clinic, nursing home, school of veterinary medicine or other health facility and is responsible for many aspects of preparing, analyzing and preserving health information needed by the patients, by the hospital and by the public. The duties include reviewing medical records for completeness and accuracy and also translating diseases and operations into the proper coding symbols.

They include filing medical records, preparing records for microfilming, typing reports of operations, X-rays and laboratory examinations, history and physical examinations and discharge summaries, compiling statistics of many kinds, assisting the medical staff by preparing special studies and tabulating data from records for research. Supervising the day-to-day operation of a medical record department, taking records to court and maintaining the flow of health information to departments of the hospital are also parts of the total work picture.

Practice in the college medical record library as well as in the medical record department of cooperating hospitals provides opportunity for educational experience. This experience is the vital core of the program.

This curriculum is accredited by the Council on Medical Education of the American Medical Association and the American Medical Record Association.

Students in the Medical Record Processing class reviewing the results of a run of medical data after analysis by the College's IBM 360 computer.



Medical Record Technology

		Hours Per Week		
		Class	Lab	Credits
Term 1		1st YEAR		
MR 100	Introduction to Medical Record Science	0	2	1
BI 136	Zoological Principles	3	3	4
BU 161	*Typewriting	0	5	2
CH 101	Chemistry	3	2	4
LA 801	English	3	0	3
MA 101	*Mathematics	3	0	3
		12	12	17
Term 2				
MR 102	Medical Terminology	2	2	3
BI 137	Anatomy and Physiology	3	3	4
BU 162	Typewriting	0	5	2
CH 102	Chemistry	3	2	4
LA 802	English	3	0	3
		11	12	16
Term 3				
MR 103	Terms and Transcription	2	4	4
MR 105	Medical Record Science	3	3	4
BI 138	Anatomy and Physiology	3	3	4
LA 803	English	3	0	3
MA 105	Mathematics	3	0	3
		14	10	18

*MA 101 Mathematics and BU 161 Typewriting will not be required if the student has had satisfactory prior training and/or experience. Alternate courses will be substituted.

Summer Term

MR 144 **Directed Practice in Hospital (4 weeks) Graduation Requirement

		2nd YEAR		
Term 4				
MR 224	Medical Record Science	3	3	4
MR 244	**Medical Record Hospital	0	16	4
BU 276	Medical Typewriting	2	3	3
LA 804	Effective Speaking	3	0	3
LA 810	Psychology	3	0	3
		11	22	17
Term 5				
MR 225	Medical Record Science	3	3	4
MR 244 or	**Medical Record Hospital	0	16	4
MR 245				
AD 121	Medical Record Processing	3	0	3
BU 277	Advanced Medical Transcription	2	3	3
LA 820	Economics	3	0	3
		11	22	17
Term 6				
MR 237	Trends in Medical Record Science	2	0	2
MR 245	**Medical Record Hospital	0	16	4
BI 285	Pharmacology	3	0	3
BU 151	Business English	3	0	3
LA 830	Sociology	3	0	3
		11	16	15

*480 hours of directed practice are required for graduation. This is the total number of hours taken in MR 144, MR 244 and MR 245. The senior class will be divided into sections in the 2nd year, so that some students will be taking MR 244 in Term 4 and some in Term 5, while some will be taking MR 245 in Term 5 and others in Term 6. In any event, students must pass 8 credits in the MR 244 and MR 245 course sequence.



Nursing student giving a subcutaneous injection.

NURSING

Broome Community College offers a two-year, college-based curriculum to prepare graduates for immediate entrance into the first level of registered nursing. Graduates of this curriculum are eligible to take the New York State licensing examination for registered nurses. They can find immediate employment in bedside nursing care, or they may wish to continue their education for the baccalaureate and higher degrees in the nursing field.

The curriculum operates as a college program, with classes and laboratories held on the campus. Clinical instruction is in the cooperating hospitals of the Triple Cities. The clinical experiences include caring for individuals in all age groups, as well as observation periods in community health and welfare agencies.

Mature men and women are encouraged to enter this program along with recent high school graduates, whether they are married or single.

Nursing

1st YEAR

		Hours Per Week			
		Class	Lab	Credits	
Term 1					
RN	121	Nursing: Meeting Basic Human Needs	4	6	6
BI	136	Zoological Principles	3	3	4
CH	101	Chemistry	3	2	4
LA	286	Psychology	3	0	3
LA	801	English	3	0	3
		16	11	20	
Term 2					
RN	123	Nursing: Beginning of Life Cycle	4	6	6
BI	137	Anatomy and Physiology	3	3	4
CH	102	Chemistry	3	2	4
LA	287	Psychology	3	0	3
LA	802	English	3	0	3
		16	11	20	
Term 3					
RN	124	Nursing: Continuation of Life Cycle	4	6	6
BI	138	Anatomy and Physiology	3	3	4
LA	288	Psychology	3	0	3
LA	803	English	3	0	3
		Elective	3	0	3
		16	9	19	

2nd YEAR

Term 4					
RN	224	Nursing: Assessment of Problems			
		Resulting from Stress	6	12	10
BI	250	Microbiology	3	4	5
LA	280	Sociology	3	0	3
			12	16	18
Term 5					
RN	225	Nursing: Assessment of Problems			
		Resulting from Stress	6	12	10
RN	235	Trends in Nursing	0	2	1
LA	281	Sociology	3	0	3
		Elective	3	0	3
			12	14	17
Term 6					
RN	226	Nursing: Assessment of Problems			
		Resulting from Stress	6	12	10
RN	236	Trends in Nursing	0	2	1
LA	282	Sociology	3	0	3
		Elective	3	0	3
			12	14	17

X-RAY TECHNOLOGY

X-ray technicians are in demand, with the majority finding employment in hospitals, with doctors who maintain private practices, with government agencies, both civil and military, and in industry. Their work consists primarily of operating X-ray machines to determine the presence of injury or disease in patients. They also assist physicians in using radiation for treatment of diseases.

The course in X-ray Technology at Broome Community College consists of two academic years on the campus and two summers at cooperating hospitals.

Upon satisfactory completion of the program, the student receives the Associate in Applied Science degree from the College. He or she is then eligible to take the New York State Health Department examination, which must be passed in order to be a licensed practicing X-ray technician. The same examination is required for Civil Service appointments.

The student is also qualified to take the diploma examination of the American Registry of Radiologic Technologists so that he/she may become a Registered Technician (R.T.).

An X-ray technician needs to understand why things are done, as well as to know how to do them. Thus at Broome, courses are designed to give the student the proper background, so that he can understand the principles involved in his work.

Training in the radiology department of the cooperating hospitals provides the opportunity for the practical application of the college study. This training is the vital core of the program since it enables students to observe and assist in the handling of sick and injured patients as they undergo a wide variety of radiological examinations.

The young man or woman who desires to qualify for this career must be physically capable and mentally alert. He must be fitted by training and personality to work with the sick and injured as well as with the medical profession.

The curriculum is accredited by the American Medical Association's Council of Medical Education.

Students practicing positioning of the "Phantom" patient under the guidance of an instructor in the College X-ray laboratory.



X-Ray Technology

1st YEAR

		Hours Per Week		
		Class	Lab	Credits
Term 1				
XR 141	Hospital Radiographic Technique (Half Term).	0	16	2
XR 150	Orientation (Half-Term)	2	0	1
XR 151	Patient Care and Medical Terminology	0	2	1
XR 171	Radiography	3	2	4
BI 171	Anatomy and Physiology	3	2	4
LA 801	English	3	0	3
MA 101	*Mathematics	3	0	3
		12-14	6-22	18
Term 2				
XR 142	Hospital Radiographic Technique	0	16	4
XR 152	Ethics and Radiation Protection	1	0	1
XR 172	Radiography	3	2	4
BI 172	Anatomy and Physiology	3	2	4
LA 802	English	3	0	3
PH 106	Physics	2	2	3
		12	22	19
Term 3				
XR 143	Hospital Radiographic Technique	0	16	4
XR 173	Radiography	3	2	4
LA 803	English	3	0	3
PH 107	Physics	2	2	3
PH 110	Physics (Radiation)	2	2	3
		10	22	17

*MA 101 Mathematics or advised mathematics alternate.

Summer Term

XR 144	Hospital Radiographic Technique	Graduation Requirement
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2nd YEAR

Term 4				
XR 244	Hospital Radiographic Technique	0	24	6
XR 252	Departmental Administration	1	0	1
XR 255	Nuclear Medicine	1	0	1
XR 274	Radiography	3	2	4
LA	Liberal Arts Elective	3	0	3
		8	26	15
Term 5				
XR 245	Hospital Radiographic Technique	0	24	6
XR 251	Pediatric Radiography	1	0	1
XR 254	Radio Therapy	2	0	2
XR 275	Radiography	3	2	4
LA	Liberal Arts Elective	3	0	3
		9	26	16
Term 6				
XR 246	Hospital Radiographic Technique	0	24	6
XR 253	Trends in Radiologic Technology	2	0	2
XR 256	Medical and Surgical Diseases	2	0	2
XR 276	Radiography	3	2	4
LA	Liberal Arts Elective	3	0	3
		10	26	17

Summer Term

XR 247	Hospital Radiographic Technique	Graduation Requirement
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COLLEGIATE STUDIES CERTIFICATE PROGRAM

The Collegiate Studies Certificate Program at Broome Community College is a special program designed to suit the individual needs of students to prepare them for acceptance into the degree-granting programs of the college.

It consists of a full-year of study on the campus, with the student taking developmental, preparatory, or exploratory associate degree courses. The selection of these would depend on the student's academic preparedness.

This program has evolved from the experience gained with the original concept of a Pre-Technical offering, which prepared students for the engineering and technological curriculums. It was expanded a few years ago to include a broader set of courses to prepare students for all the college's offerings. That was called the General Studies Certificate Program.

The Collegiate Studies Program now enables the college to offer some students courses of different levels, when suitable to their academic backgrounds and goals.

The basic core of courses offered in the Collegiate Studies Program still includes English, mathematics and science to give the student a broad base of academic preparation. This will help him, whether he decides to enter the college's programs in liberal arts, health sciences, engineering or engineering technology, or business.

Academic advising is an important feature of the Collegiate Studies Certificate Program.



COURSE DESCRIPTIONS

Numbering System

The College's course numbers are preceded by two letters which in most instances stand for the department responsible for teaching them. Courses numbered from 100 to 199 are generally first-year level and those from 200 to 299 second-year.

AD	Special Programs (Non-Departmental)
BI	Biological Sciences
BU	Business
CH	Chemical Technology
CS	Collegiate Studies Certificate Program
CT	Civil Technology
DH	Dental Hygiene
EH	Environmental Health Technology
ET	Electrical Technology
LA	Liberal Arts
MA	Mathematics
MR	Medical Record Technology
MT	Mechanical Technology
PE	Physical Education
PH	Physics
RN	Nursing
XR	X-Ray Technology

AD 100 Orientation

0 Credit

Freshmen will be given the opportunity to participate in a regularly scheduled program to broaden their understanding of themselves as students in a specific curriculum and in an academic community. The major emphasis is to enable students to better understand, through discussion, their college, college policies, curriculum objectives, transfer and placement opportunities, as well as available college services. For Business and Engineering Technology freshmen.

1 Class Hour

COMPUTING CENTER

Because many college programs and industries depend on the computer to process data rapidly, both transfer-minded students and those preparing for immediate employment after graduation are introduced to the capabilities of the computer.

The Computing Center's hardware consists of two computers—an IBM 1130 and an IBM 360 Model 20—and a remote terminal which is used on a time-shared basis with the computer on the State University at Binghamton campus.

AD 112 Computer Programming for Engineers

3 Credits

Programming and the use of the IBM 1130 Digital Computer. Fortran with block diagramming, numbering and coding systems. Use of graphic plotter and empirical equations. For Engineering Science students.

2 Class Hours, 2 Laboratory Hours

AD 120 Fundamentals of Computer Programming 3 Credits

Fundamental concepts and applications of Fortran programming including discussion of computer history, computer hardware, number systems, flow charting, debugging techniques, sub-programs, plotting, array manipulation, system software.

2 Class Hours, 2 Laboratory Hours

Prerequisite: MA 140 College Algebra and Trigonometry

AD 121 Medical Record Processing 4 Credits

The use of punched card equipment, design of forms and use of electronic computers with applications in the field of medical statistics and records. Basic principles of flow charting and introduction to programming, with emphasis on electronic computers and auxiliary equipment. For Medical Record Technology students.

3 Class Hours, 2 Laboratory Hours

Prerequisite: MA 105 Mathematics



Instructor explaining the operation of the high speed printer in the College's Computing Center.

BIOLOGICAL SCIENCES

BI 100 Ethics and Orientation

1 Credit

History and scope of health specialties. Field trips. Professional ethics. Responsibility of health personnel to self, employer, physician and patient. Professional affiliation. For students in Environmental Health and Medical Laboratory Technology and Medical Office Assistant curriculums.

2 Laboratory Hours

BI 101 Biology

4 Credits

A principles approach to the science of biology. As the basis of life the principle of cellular metabolism is related to cellular structure and function. The principle of organism perpetuation is developed by studies of genetics, embryology and reproduction. For Liberal Arts Students.

3 Class Hours, 3 Laboratory Hours

BI 102 Biology

4 Credits

A principles approach to the science of biology continued. The principles of organism maintenance and integration are developed by an emphasis on human organ systems. The principle of evolution is introduced and exemplified by a survey of the plant and animal kingdoms. For Liberal Arts Students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: BI 101 Biology

BI 103 Biology

4 Credits

A principles approach to the science of biology continued. The principle of diversity is further developed by studying the more highly evolved animal groups. Principle of ecological interrelatedness of organisms. Ecological and evolutionary principles are integrated by considering past and present distribution of organisms on the earth's surface. For Liberal Arts students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: BI 102 Biology

BI 104 Biology Seminar—Current Trends in Biology

1 Credit

Current trends and developments in the biological sciences presented and discussed by students. Each student is expected to present at least one oral report and to take part in the discussions of other reports. Use of recent literature is stressed.

2 Class Hours

Prerequisite: BI 103 Biology

BI 106 Limnology

4 Credits

Chemistry, physics, geology and biology of fresh water lakes, rivers and streams. Water sampling techniques, fresh water organisms, health and recreational aspects of fresh water pollution. For Environmental Health Technology students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: Consent of Instructor

BI 111 Standard First Aid Course

1 Credit

Fundamentals of first aid as outlined by the standard Red Cross course. For Dental Hygiene students.

1 Class Hour

BI 134 Physiology (Bioanalysis)

1 Credit

Laboratory introduction to microscopic and chemical analysis of blood and urine. For Medical Laboratory Technology students.

3 Laboratory Hours

Must be taken concurrently with BI 138 Anatomy and Physiology

BI 136 Zoological Principles**4 Credits**

Using examples from the animal kingdom, this course relates fundamental anatomical and physiological factors, thus showing the communality of the biotic world. Cellular respiration, energy transfer, materials transport, evolutionary development, genetic continuity. For students in Environmental Health, Medical Laboratory and Medical Record Technology, Medical Office Assistant and degree Nursing programs.

3 Class Hours, 3 Laboratory Hours**BI 137 Anatomy and Physiology****4 Credits**

Structure and function of the human body, including both microscopic and gross techniques. Through a systematic approach such topics as the skeleton, muscles, nervous control and circulation are included. Laboratory work complements and amplifies the class topics through microscopic study, foetal pig dissection and basic physiological techniques. For students in Medical Laboratory and Medical Record Technology and Medical Office Assistant and degree Nursing programs.

3 Class Hours, 3 Laboratory Hours**Prerequisite: BI 136 Zoological Principles or BI 103 Biology****BI 138 Anatomy and Physiology****4 Credits**

Continued study of the human body, including respiration, excretion, digestion, endocrine function and reproduction. Laboratory work includes continued dissection of the foetal pig and physiological techniques. For students in Medical Laboratory and Medical Record Technology and Medical Office Assistant and degree Nursing programs.

3 Class Hours, 3 Laboratory Hours**Prerequisite: BI 137 Anatomy and Physiology****BI 159 Microbiology****5 Credits**

General and medical microbiology. The basic phases of immunology. Asepsis, disinfection, sterilization, cultivation, identification. Test used for diagnosis and immunization. For Dental Hygiene, General Hospital nursing students.

3 Class Hours, 4 Laboratory Hours**Prerequisite: CH 102 Chemistry****BI 171 Anatomy and Physiology****4 Credits**

Gross and microscopic anatomy of the human body and the function of its parts. Emphasis on form and structure. Laboratory work includes microscopic anatomy, dissection of the foetal pig and cat, a study of the systems and their interrelationships. For Dental Hygiene and X-ray Technology students. General Hospital nursing students take a 3-hour laboratory.

3 Class Hours, 2 Laboratory Hours**BI 172 Anatomy and Physiology****4 Credits**

Continued study of gross and microscopic anatomy, the relationship of function to structure, with emphasis on basic physiology. Chemical tests and additional dissection. For Dental Hygiene and X-ray Technology students. General Hospital nursing students take a 3-hour laboratory.

3 Class Hours, 2 Laboratory Hours**Prerequisite: BI 171 Anatomy and Physiology****BI 176 Dental Histology****4 Credits**

Lecture and laboratory study of the fundamental body tissues and different phases of embryonic development. Emphasis on the origin and structure of the tissues of the oral cavity. For Dental Hygiene students.

3 Class Hours, 2 Laboratory Hours**Prerequisite: BI 172 Anatomy and Physiology****BI 204 Medical Office Procedures****4 Credits**

Laboratory introduction to microscopic and chemical analysis of blood and urine as performed in the physician's office. For Medical Office Assistant students.

2 Class Hours, 4 Laboratory Hours

Student examining a blood smear in a biology laboratory.



BI 205 Medical Office Procedures

4 Credits

Medical assisting procedures used in the physician's office, including office management, caring for medical and surgical instruments, first aid and aide-training for civil emergencies. Professional ethics, jurisprudence and nomenclature. For Medical Office Assistant students.

2 Class Hours, 4 Laboratory Hours

Prerequisite: MR 102 Medical Terminology or the consent of instructor

BI 206 Medical Office Procedures

4 Credits

Advanced technical procedures in medical assisting, including such specialties as electrocardiography, audiometry, physical therapy. Includes field trips and practice experiences. For Medical Office Assistant students.

2 Class Hours, 4 Laboratory Hours

Prerequisite: BI 205 Medical Office Procedures

BI 207 Parasitology

4 Credits

Parasites and insects of importance in environmental health. Identification and control procedures. For Environmental Health Technology students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: BI 103 Biology or BI 136 Zoological Principles

BI 233 Introduction to Clinical Physiology

2 Credits

Emphasis on cellular functions such as respiration, digestion, metabolism, synthesis and excretion. For Medical Laboratory Technology students.

2 Class Hours

Prerequisite: BI 134 Physiology (Bioanalysis) and one term of inorganic chemistry

BI 234 Physiology

4 Credits

Continued study of physiological processes. Emphasis on blood and circulatory system. For Medical Laboratory Technology students.

2 Class Hours, 6 Laboratory Hours

Prerequisite: BI 134 Physiology (Bioanalysis)

BI 235 Physiology 4 Credits

Emphasis on the body functions of respiration, digestion, metabolism and excretion. Laboratory work includes related chemical tests and physio-chemical measurements of the body functions. For Medical Laboratory Technology students.

2 Class Hours, 4 Laboratory Hours

Prerequisite: BI 234 Physiology

BI 240 Physiology 4 Credits

Functions of the body including enzyme systems, the endocrines, electrolyte balance and acid-base regulation. The physiological processes and related assays. For Medical Laboratory Technology students.

2 Class Hours, 6 Laboratory Hours

Prerequisites: BI 235 Physiology and CH 224 Chemistry

BI 244, 245 Directed Practice 4, 4 Credits

Directed practical experience in the physician's office, medical centers or extended health care facilities. For Medical Office Assistant students.

16 Laboratory Hours each

Prerequisites: BI 204 Medical Office Procedures and

BI 205 Medical Office Procedures

BI 250 Microbiology 5 Credits

The biology of the common bacteria and related microorganisms. Non-pathogens and pathogens. Basic phases of immunology. Asepsis, disinfection, sterilization, cultivation, identification. For students in Environmental Health and Medical Laboratory Technology, Medical Office Assistant and degree Nursing programs.

3 Class Hours, 4 Laboratory Hours

Prerequisite: 1 year of biological science or of chemistry

BI 251 Microbiology 5 Credits

A continuation of BI 250 Microbiology. Emphasis on infectious diseases, communicability, diagnoses and identification of causative organisms, including microbiology and parasitology. For Medical Laboratory Technology students.

3 Class Hours, 4 Laboratory Hours

Prerequisite: BI 250 Microbiology

BI 252 Microbiology 4 Credits

Continued study of the principles of immunity and the practice of serological techniques. Agglutination and precipitation tests in general, inflammation and leucocyte response, blood grouping and typing. For Medical Laboratory Technology students.

2 Class Hours, 4 Laboratory Hours

Prerequisite: BI 251 Microbiology

BI 254 Microbiology 4 Credits

Microbiological analysis of milk, food, water, sewage, air. For Environmental Health Technology students.

2 Class Hours, 6 Laboratory Hours

Prerequisite: BI 250 Microbiology

BI 285 Pharmacology 3 Credits

The action of drugs, their sources, properties, preparation, administration. The mathematics of pharmacy and prescription writing. For Medical Office Assistant and Medical Record Technology students.

3 Class Hours

Prerequisite: BI 138 Anatomy and Physiology or

BI 172 Anatomy and Physiology

BUSINESS

BU 101 Accounting 4 Credits
Basic concepts and procedures used in the accounting cycle. Emphasis on journals, ledgers and financial statements. 4 Class Hours

BU 102 Accounting 4 Credits
Accounting for cash, receivables, payables, notes, inventory, adjusting and correcting entries, long term assets and the voucher system. Completion of a practice set is also required. 4 Class Hours
Prerequisite: BU 101 Accounting

BU 103 Accounting 4 Credits
Procedures for payroll accounting, partnership accounting, corporation accounting, manufacturing accounting. 4 Class Hours
Prerequisite: BU 102 Accounting

BU 130 Introduction to Electronic Data Processing 3 Credits
Historical development of electronic data processing systems and how they perform business functions. The data processing cycle, the punched card and operation of unit record equipment. Basic computer concepts including their nature, capabilities, limitations. Introduction to the functional units of a computer and the stored program. 3 Class Hours
Prerequisite: BU 101 Accounting

BU 141 Business Mathematics 3 Credits
Review of arithmetic operations. Preparation and use of shortcut operations. Instruction, review and drill in percentage. Cash and trade discounts, markup, payroll, sales, property and other taxes. Simple and compound interest, bank discounts, interest, investments, annuities. 3 Class Hours

BU 142 Business Statistics 3 Credits
Concepts and mechanics of basic statistical methods applicable to problems of business and economics. 3 Class Hours
Prerequisite: BU 141 Business Mathematics

BU 145 Business Law 3 Credits
Federal and state judicial systems. Basic principles of contracts, involving the requisites for valid contracts, parties to the contracts, offer and acceptance, performance and discharge. Applications of contracts to agency. Legal aspects of partnerships and corporations. 3 Class Hours

BU 146 Business Law 3 Credits
Contracts as applied to sales, bailments, carriers, warehousemen. Negotiable instruments, the rights and obligations associated with them. 3 Class Hours
Prerequisite: BU 145 Business Law

BU 147 Business Law 3 Credits
Background and sources of law including the Federal and state judicial systems. Introduction to legal principles and their relationship to business practices through a survey of contracts, commercial instruments, insurance, personal and real property. 3 Class Hours

BU 151 Business English 3 Credits

Development of desirable letter writing style. Review of basic letter mechanics. Inquiry and reply, claim and adjustment, credit and collection, sales and promotion, application letters. Composition of business correspondence.

3 Class Hours

BU 161 Typewriting 2 Credits

A beginning sequence in touch typewriting to make the operator accurate, rhythmical and moderately rapid in the operation of the typewriter. Development of correct procedures in care and use of machine. Projects include simple business letters, tabulations, manuscripts, building of typewriting speed. For Medical Office Assistant and Medical Record Technology students, as well as those in Secretarial curriculums.

5 Laboratory Hours

BU 162 Typewriting 2 Credits

Development of proficiency of techniques in typing business letters, tabulations and miscellaneous business forms. For Medical Office Assistant and Medical Record Technology students, as well as those in Secretarial curriculums.

5 Laboratory Hours

Prerequisite: BU 161 Typewriting or equivalent

BU 163 Typewriting 3 Credits

Continuation of basic skill building with emphasis on speed and accuracy in typing advanced materials, such as rough drafts, complicated tabulations, manuscripts, legal papers and specifications. For Medical Office Assistant and Medical Record Technology students, as well as those in Secretarial curriculums.

2 Class Hours, 3 Laboratory Hours

Prerequisite: BU 162 Typewriting

BU 164 Shorthand 3 Credits

A beginning course in Gregg Shorthand, Diamond Jubilee System. Basic principles to promote the ability to read fluently from plates and notes. Longhand transcription from shorthand notes dictated from familiar material at a minimum rate of 50 words per minute.

2 Class Hours, 3 Laboratory Hours

BU 165 Shorthand 3 Credits

Emphasis on shorthand writing ability at sustained speeds. Transcription at the typewriter from shorthand notes dictated from non-previewed materials at a minimum rate of 60 words per minute.

2 Class Hours, 3 Laboratory Hours

Prerequisites: BU 161 Typewriting or equivalent and BU 164 Shorthand or equivalent

BU 166 Shorthand 3 Credits

Emphasis on speed in shorthand writing. Transcription at the typewriter from shorthand notes dictated from non-previewed materials at a minimum rate of 70 words per minute.

2 Class Hours, 3 Laboratory Hours

Prerequisites: BU 162 Typewriting and BU 165 Shorthand and BU 167 Transcription

BU 167 Transcription 3 Credits

Development of skill in producing mailable transcripts at the typewriter from the student's shorthand notes. Emphasis on the correct use of grammar, spelling, punctuation, capitalization, vocabulary, numbers.

2 Class Hours, 3 Laboratory Hours

Prerequisites: BU 161 Typewriting or equivalent and BU 164 Shorthand or equivalent

BU 204 Intermediate Accounting**4 Credits**

Assets, liability, capital and operating accounts comprising financial statements. Generally accepted accounting principles followed in the preparation of these statements.

4 Class Hours**Prerequisite: BU 103 Accounting****BU 205 Intermediate Accounting****4 Credits**

Consideration of inventory valuation and estimation methods. Investments in stocks and bonds. Acquisition, valuation, use and retirement of fixed assets. Current liabilities.

4 Class Hours**Prerequisite: BU 204 Intermediate Accounting****BU 206 Intermediate Accounting****4 Credits**

Intangible assets. Corporation accounting including handling of stock issuance, treasury stock, bond transactions. Analysis of financial statements. Funds-flow and cash-flow reporting.

4 Class Hours**Prerequisite: BU 205 Intermediate Accounting****BU 207 Cost Accounting****4 Credits**

The nature and purpose of cost accounting. Accounting for direct labor, materials and factory overhead with emphasis on job order costing. Standard cost principles and procedures.

4 Class Hours**Prerequisite: BU 103 Accounting****BU 208 Cost Accounting****4 Credits**

Process cost system, inventories, spoilage, factory ledger, special journals.

4 Class Hours**Prerequisite: BU 207 Cost Accounting****BU 210 Cost Accounting****4 Credits**

Direct costing, payroll, capital budgeting and non-manufacturing costs.

4 Class Hours**Prerequisite: BU 208 Cost Accounting****BU 221 Computer Programming—Fortran****3 Credits**

Historical development of computers together with an introduction to data processing systems. The Fortran language and an introduction to machine language. An introduction to binary and other base numbering systems, flow diagramming, scaling, techniques of program checking and error analysis.

Applied theory in the laboratory by programming solutions to business problems using the Fortran language.

2 Class Hours, 2 Laboratory Hours**Prerequisite: BU 130 Introduction to Electronic Data Processing****BU 223 Internal Auditing****4 Credits**

Internal auditing is an independent appraisal activity within an organization for the review of accounting, financial and other operations as a basis for service to management. It is a managerial control, which functions by measuring and evaluating the effectiveness of other controls.

4 Class Hours**Prerequisite: BU 103 Accounting**

BU 241 Computer Programming — RPG

3 Credits

Review of fundamental concepts of stored-program computers, various memory devices, and input-output media. Preparation and execution of programs in RPG (Report Program Generator) language.

2 Class Hours, 2 Laboratory Hours

Prerequisite: BU 130 Introduction to Electronic Data Processing

BU 251 Office Management

3 Credits

The concept of planning, directing, controlling and actuating office work through systems, layouts, personnel control and the selection of equipment.

3 Class Hours

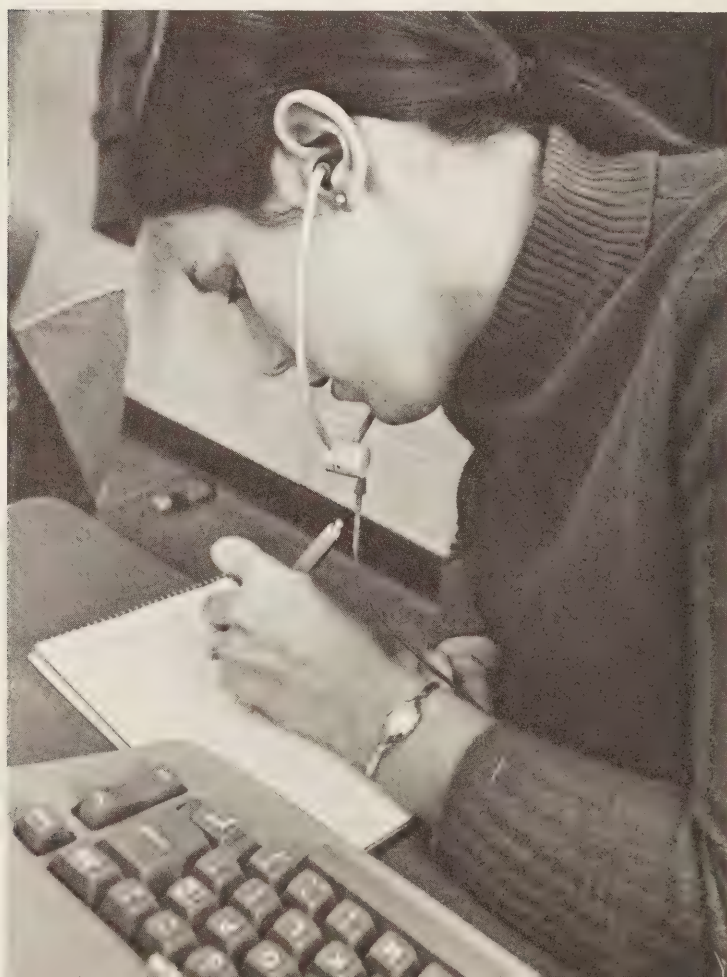
BU 252 Business Report Writing

3 Credits

Training in logical analysis of business case problems, applied to the preparation of accurate written reports. Methods and skills used in formal and informal business writing. Preparation of tables, charts, reference citations and bibliographies.

3 Class Hours

Prerequisite: BU 151 Business English



- BU 253 Personnel Administration** **3 Credits**
Techniques and methods used to achieve utilization of manpower in business through proper selection, placement, training, job evaluation, wage setting, employee relations. **3 Class Hours**
- BU 255 Principles of Management** **3 Credits**
An introductory course in the principles of managerial practices. A functional approach explaining planning, organizing, directing and controlling and their role as principles of management. **3 Class Hours**
- BU 260 Engineering Shorthand** **3 Credits**
Emphasis on increasing knowledge of basic information and vocabulary, with dictation and transcription of specialized material from selected areas of engineering and scientific research. **2 Class Hours, 3 Laboratory Hours**
Prerequisites: BU 163 Typewriting and BU 166 Shorthand
- BU 261 Engineering Shorthand** **3 Credits**
Continued emphasis on increasing knowledge of basic information and vocabulary, with dictation and transcription of specialized material from selected areas of engineering and scientific research. **2 Class Hours, 3 Laboratory Hours**
Prerequisite: BU 260 Engineering Shorthand
- BU 263 Technical Typewriting** **3 Credits**
Specialized training in understanding the correct procedures in preparing type-written technical materials. Emphasis on typing equations, formulas, laboratory reports. **2 Class Hours, 3 Laboratory Hours**
Prerequisite: BU 260 Engineering Shorthand
- BU 270 Executive Shorthand** **3 Credits**
Emphasis on increasing knowledge of basic information and vocabulary, with dictation and transcription of specialized material from the fields of finance and real estate. **2 Class Hours, 3 Laboratory Hours**
Prerequisites: BU 163 Typewriting and BU 166 Shorthand
- BU 271 Executive Shorthand** **3 Credits**
Emphasis on increasing knowledge of basic information and vocabulary, with dictation and transcription of specialized material from the fields of law and insurance. **2 Class Hours, 3 Laboratory Hours**
Prerequisite: BU 270 Executive Shorthand
- BU 274 Office Practice** **4 Credits**
Practical experiences in the operation of calculating, duplicating, transcribing machines. Emphasis on grooming, business ethics, problem-solving techniques in an office atmosphere. **2 Class Hours, 4 Laboratory Hours**
Prerequisites: BU 163 Typewriting and BU 167 Transcription
- BU 275 Office Practice** **4 Credits**
Continued development of office machines operations. Useful application of filing procedures. Opportunity for advanced study and skill development projects. **2 Class Hours, 4 Laboratory Hours**
Prerequisite: BU 274 Office Practice
- BU 276 Medical Typewriting** **3 Credits**
Development of speed and accuracy at the typewriter in preparing medical forms and other papers recorded by doctors and hospitals. **2 Class Hours, 3 Laboratory Hours**
Prerequisites: BU 162 Typewriting and MR 103 Terms and Transcription

BU 277 Advanced Medical Transcription 3 Credits

Development of advanced medical transcription techniques at the typewriter through the use of electronically recorded histories and physicals, discharge summaries, consultation reports, operative notes, out-patient reports, minutes of meetings.

2 Class Hours, 3 Laboratory Hours

Prerequisite: BU 276 Medical Typewriting

BU 280 Speed Shorthand 3 Credits

Introduction of special short cuts to increase efficiency in taking dictation at higher speeds. Dictation of a variety of materials from 100 to 160 words per minute.

2 Class Hours, 3 Laboratory Hours

Prerequisite: BU 261 Engineering Shorthand or BU 271 Executive Shorthand

BU 284 Medical Office Accounting 3 Credits

The useful application of record-keeping, beginning with the basic accounting concepts and utilizing the practical transitions through the entire accounting cycle. Emphasis on the books of entry and their application in preparing various accounting statements used in a medical office. For Medical Office Assistant students.

2 Class Hours, 3 Laboratory Hours

BU 287 Salesmanship 4 Credits

The principles of sales with practical applications. Prospecting, product and service analysis, meeting objections, demonstrating, sales psychology, preparation of sales presentations.

4 Class Hours

BU 288 Advertising 3 Credits

Development, economics, functions of advertising. Cost and application, the various media, advertising as a vocation, testing and research utilization.

3 Class Hours

Prerequisite: BU 292 Marketing

BU 289 Management: A Behavioral Approach 3 Credits

A comparative analysis of managerial theories and an integration of selected social sciences to investigate organizational problems related to managerial functions. Communications, decision-making, control theory. The impact of the organizational environment upon human behavior.

3 Class Hours

BU 291 Sales Management 3 Credits

Development of control techniques in the administration of sales forces. Incentive systems, territory planning, development of sales potentials, personnel problems peculiar to this field.

3 Class Hours

Prerequisite: BU 142 Business Statistics

BU 292 Marketing 3 Credits

The distributive phase of economics, from the time a good or service is produced up to the point of consumption. Marketing functions, classification of goods and of markets, marketing channels and agents in each. Lectures, discussions, case problems.

3 Class Hours

BU 294 Advertising 4 Credits

Detailed development of advertisements, copy and layout, method and problems of reproduction. Planning the advertising campaign with step-by-step development. Lectures, demonstrations, field trips.

4 Class Hours

Prerequisite: BU 288 Advertising

BU 295 Marketing Research 3 Credits

Methods of collecting and interpreting marketing information. Specific applications to problems in market development, market potential, sales management. Case studies.

3 Class Hours

Prerequisites: BU 142 Business Statistics and BU 298 Marketing

BU 296 Credit**3 Credits**

Types of credit, credit department organization, credit reports and information, credit risk factors, collection procedures, analysis of financial statements.

3 Class Hours**Prerequisite: BU 102 Accounting****BU 297 Marketing Management****3 Credits**

Analysis of problems and activities in managing the marketing responsibility of manufacturing and wholesaling firms. Study of formulation of product, brand, distribution, pricing policies and their applications.

3 Class Hours**Prerequisite: BU 298 Marketing****BU 298 Marketing****3 Credits**

Continuation of BU 292 Marketing. Application of fundamental precepts established in the basic course. Detailed study of the functional analysis of institutions and marketing costs. Relationship to advertising and sales promotion. Advanced marketing philosophy. Lectures and discussions with emphasis on case problems.

3 Class Hours**Prerequisite: BU 292 Marketing****BU 299 Retailing****3 Credits**

Fundamentals of purchasing, merchandising, pricing, promotion. Principles of retail management. Coordination of accounting and basic marketing concepts at the market focal point.

3 Class Hours**Prerequisite: BU 292 Marketing****BU 300 Purchasing****3 Credits**

Analytical approach to techniques employed in the purchasing phase of marketing. Emphasis on the organization of the purchasing function with respect to procedures, forms and records needed to carry out procurement activities.

3 Class Hours**Prerequisites: BU 101 Accounting and BU 292 Marketing or equivalent**

CHEMISTRY

CH 101 Chemistry**4 Credits**

Fundamental concepts of inorganic chemistry including composition of substances, kinetic and molecular theories, atomic structure and bonding, solutions and colloids, ions in solution and nucleonics. For Dental Hygiene, Medical Record Technology, Medical Office Assistant and Nursing students.

3 Class Hours, 2 Laboratory Hours**CH 102 Chemistry****4 Credits**

Fundamental concepts of organic and biological chemistry including proteins, fats, carbohydrates and their role in metabolism. Also a chemical consideration of vitamins, hormones, enzymes and the fluids of the body. For Dental Hygiene, Medical Record Technology, Medical Office Assistant and Nursing students.

3 Class Hours, 2 Laboratory Hours**CH 104 Chemistry****4 Credits**

Basic laws, principles and theories of chemistry. Structure of matter, periodicity, chemical action, states of matter and solutions, elements of organic chemistry. For Civil and Mechanical Technology and Engineering Secretarial students.

3 Class Hours, 2 Laboratory Hours

CH 121 Chemistry 4 Credits

Fundamental concepts of inorganic chemistry, including composition of substances, kinetic and molecular theories, atomic structure and bonding, solutions and ionization of acids, bases and salts. For Medical Laboratory Technology students.

3 Class Hours, 3 Laboratory Hours

CH 122 Chemistry 4 Credits

Coordination chemistry, oxidation reduction and electrochemistry, the colloidal state, complex equilibrium. These concepts are applied by study of qualitative cation analysis in the laboratory. For Medical Laboratory Technology students.

3 Class Hours, 3 Laboratory Hours

Prerequisites: CH 121 Chemistry and MA 101 Mathematics

CH 123 Chemistry 4 Credits

Continuation of CH 122 Chemistry to include theory and laboratory in volumetric and gravimetric analysis. For Medical Laboratory Technology students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: CH 122 Chemistry

CH 132 General Chemistry 4 Credits

Fundamental principles, laws and theories of chemistry relating to simple atomic and molecular structure, periodicity, bonding, stoichiometric relationship, states of matter, water. For Liberal Arts non-science majors and Environmental Health Technology students.

3 Class Hours, 3 Laboratory Hours

CH 133 General Chemistry 4 Credits

A continuation of CH 132 General Chemistry. Solutions, ionization and electrolytes, acids, bases and salts, pH, colloids, equilibrium. For Liberal Arts non-science majors and Environmental Health Technology students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: CH 132 General Chemistry

CH 134 General Chemistry 4 Credits

A continuation of CH 133 General Chemistry. Basic concepts of organic and nuclear chemistry, descriptive chemistry of some common elements. For Liberal Arts non-science majors and Environmental Health Technology students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: CH 133 General Chemistry

CH 135 Chemistry 4 Credits

Fundamental principles and laws underlying chemical action, their integration with the theories of atomic structure and chemical bonding, and correlation with the position of the elements on the periodic table. Atomic structure, the periodic table, chemical bonding, water, the states of matter, stoichiometric calculations. For Liberal Arts science majors and Engineering Science students.

3 Class Hours, 3 Laboratory Hours

CH 136 Chemistry 4 Credits

Continuation of CH 135 Chemistry. Solutions, oxidation-reduction, ionization and electrolysis, acids, bases and salts, chemical equilibrium and coordination compounds. For Liberal Arts science majors and Engineering Science students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: CH 135 Chemistry

CH 137 Chemistry**4 Credits**

Ionization constants, solubility products and equilibrium constants. Laboratory work includes the detection and identification of the more important cations and anions including work on the analysis of mixtures. For Liberal Arts science majors and Engineering Science students.

3 Class Hours, 3 Laboratory Hours**Prerequisite: CH 136 Chemistry****CH 220 Organic Chemistry****5 Credits**

First quarter of a year's study in depth of the various functional groups of organic compounds. Emphasis on structures, reactions, reaction mechanisms, spectroscopic methods of analysis.

3 Class Hours, 4 Laboratory Hours**Prerequisite: CH 123 Chemistry or 1 full year of General Chemistry****CH 221 Organic Chemistry****5 Credits**

Continuation of CH 220 Organic Chemistry.

3 Class Hours, 4 Laboratory Hours**Prerequisite: CH 220 Organic Chemistry****CH 222 Organic Chemistry****5 Credits**

Continuation of CH 221 Organic Chemistry

Prerequisite: CH 221 Organic Chemistry**CH 224 Organic Chemistry****4 Credits**

An integrated general presentation of theory, nomenclature, preparation, properties, reactions, occurrence and uses of important aliphatic and aromatic organic compounds. For Medical Laboratory Technology students.

3 Class Hours, 3 Laboratory Hours**Prerequisite: CH 123 Chemistry****CH 225 Organic Chemistry****3 Credits**

Continuation of CH 224 Organic Chemistry and includes such topics as proteins, lipids and carbohydrates, alkaloids, steroids, vitamins and enzymes. For Medical Laboratory Technology students.

2 Class Hours, 3 Laboratory Hours**Prerequisite: CH 224 Organic Chemistry****CH 226 Instrumental Analysis****5 Credits**

Theory and laboratory instruction in electrochemical methods of analysis, including potentiometry, polarography, coulometry, conductimetry and radio-chemistry. For Medical Laboratory Technology students.

2 Class Hours, 6 Laboratory Hours**Prerequisite: CH 123 Chemistry****CH 227 Instrumental Analysis****5 Credits**

Instrumental methods of analytical chemistry, primarily optical methods. Laboratory work in visible, ultraviolet and infrared spectrophotometry. Column, paper, thin layer, ion exchange, gas chromatography. Chemical microscopy, emission spectroscopy, electrophoresis. For Medical Laboratory Technology students.

2 Class Hours, 6 Laboratory Hours**Prerequisite: CH 224 Organic Chemistry****CH 228 Analytical Chemistry****5 Credits**

Principles and techniques of modern quantitative chemical analysis including gravimetric and volumetric analysis, introduction to elementary instrumental methods, statistical interpretation of analytical data. Laboratory work includes analysis of samples for inorganic and organic compounds.

3 Class Hours, 4 Laboratory Hours**Prerequisite: CH 123 Chemistry**

CH 251 Organic Chemistry

5 Credits

Basic principles of organic chemistry, employing the reaction mechanisms and transition state considerations. Structure and reactivity, alkanes, free radicals, alkenes, carbonium ion theory, electrophilic addition, alkynes, dienes, resonance, electrophilic aromatic substitutions, arenes, alkyl halides and S_N1 vs. S_N2 , $E1$ vs. $E2$. Laboratory stresses basic techniques of reactions, separations and isolations. For Chemical Technology students and Liberal Arts science majors.

3 Class Hours, 4 Laboratory Hours

Prerequisite: CH 112 Chemistry or CH 137 Chemistry

CH 252 Organic Chemistry

5 Credits

A continuation of CH 251 Organic Chemistry including the reaction mechanism and transition state considerations. Alcohols, carboxylic acids, functional derivatives of carboxylic acids, nucleophilic acyl substitution, ethers, aldehydes, ketones, carbanions, nucleophilic addition and synthesis problems. For Chemical Technology students and Liberal Arts Science majors.

3 Class Hours, 4 Laboratory Hours

Prerequisite: CH 251 Organic Chemistry

CH 253 Organic Chemistry

5 Credits

The identification of organic compounds by correlation of fundamental properties, and the behavior of organic compounds with their structures. Preparation and properties of polymers. For Chemical Technology students and Liberal Arts science majors.

3 Class Hours, 4 Laboratory Hours

Prerequisite: CH 252 Organic Chemistry

CH 265 Chemical Processes

5 Credits

Basic definitions and computations including slide rule. Systems of units, data collection and analysis. Graphical construction and interpretation. Quantitative chemical problem analysis.

3 Class Hours, 4 Laboratory Hours

Prerequisites: CH 123 Chemistry and MA 140 College Algebra and Trigonometry or CS 112 Elements of Technical Mathematics

CH 266 Chemical Processes

5 Credits

Behavior of gases and vapors, material balances, energy balances and thermochemistry.

3 Class Hours, 4 Laboratory Hours

Prerequisite: CH 265 Chemical Processes

CH 267 Chemical Processes

5 Credits

Phase diagrams, separation processes, graphical and analytical solution of process problems.

3 Class Hours, 4 Laboratory Hours

Prerequisite: CH 265 Chemical Processes

CIVIL TECHNOLOGY

- CT 110 Architectural Drawing** 1 Credit
Development of working drawings for residential construction, including floor plans, elevations, sections, details, mechanical and electrical layouts.
3 Laboratory Hours
Prerequisite: MT 110 Engineering Drawing
- CT 119 Plain Concrete** 3 Credits
A study of cements, aggregates and plain concrete, including the testing of cements and aggregates, the design, mixing, testing, placing, curing control and inspection of plain concrete. ASTM and AASHTO standards.
2 Class Hours, 3 Laboratory Hours
- CT 140 Surveying** 5 Credits
Plane surveying including distance measurement, note keeping, compass surveying, leveling, angle measurement, care and use of instruments, stadia, traversing, coordinates, area computation, searching, deed descriptions.
3 Class Hours, 6 Laboratory Hours
Prerequisite: MA 140 College Algebra and Trigonometry
- CT 141 Surveying** 4 Credits
Continuation of CT 140 Surveying, including observation of meridian, triangulation, land surveys, horizontal and vertical control, photogrammetry, mapping.
2 Class Hours, 6 Laboratory Hours
Prerequisite: CT 140 Surveying
- CT 153 Strength of Materials** 4 Credits
Study of stress and strain, elasticity, shear and moment in beams, stresses in beams, torsion, combined stresses, mechanical properties of structural materials. Laboratory work includes mechanical tests on wood, concrete and metals.
3 Class Hours, 3 Laboratory Hours
Prerequisites: MT 155 Applied Mechanics and MA 141 Calculus
- CT 211 Architectural Drawing** 1 Credit
Continuation of CT 110 Architectural Drawing including cabinet details, plot plans and architectural rendering. Emphasis on the development of perspective drawings.
3 Laboratory Hours
Prerequisite: CT 110 Architectural Drawing
- CT 212 Architectural Drawing** 1 Credit
Development of a set of working drawings for a small commercial building including floor plans, elevations, sections, details, mechanical and electrical layouts, window and door schedules. Term project.
3 Laboratory Hours
Prerequisite: CT 211 Architectural Drawing
- CT 220 Reinforced Concrete Design** 4 Credits
Fundamental behavior of reinforced concrete. Design, analysis and detailing of rectangular beams, T-beams, beams reinforced for compression, columns and footings. Major emphasis on ultimate strength design methods. An integrated design and detailing project.
3 Class Hours, 3 Laboratory Hours
Prerequisite: CT 254 Strength of Materials
- CT 221 Structural Steel Design** 4 Credits
Fundamental theory and principles necessary for design of simple steel structures. Design, investigation and detailing of beams, columns, tension and compression members and their connections. Composite beams. An integrated design and detailing project.
3 Class Hours, 3 Laboratory Hours
Prerequisite: CT 254 Strength of Materials



Student at work on an architectural drawing.

CT 230 Building Design 4 Credits

Building materials, manufacturing processes and construction methods. Application of architectural design principles to institutional type buildings. Term project.

3 Class Hours, 3 Laboratory Hours

Prerequisite: CT 250 Estimating and Construction Planning

CT 250 Estimating and Construction Planning 4 Credits

A systematic approach to estimating building project costs combined with a study of construction management and the critical path method of scheduling.

3 Class Hours, 3 Laboratory Hours

Prerequisite: CT 212 Architectural Drawing or permission of instructor

CT 254 Strength of Materials 3 Credits

A continuation of CT 153 Strength of Materials including deflection of beams. Analysis of statically indeterminate beams, restrained and continuous. Columns, selected topics.

3 Class Hours

Prerequisite: CT 153 Strength of Materials

CT 260 Hydraulics 3 Credits

Basic course in hydraulics including properties of fluids, hydrostatics, fluid motion flow in or through orifices, nozzles, pipes, weirs, open channels, hydraulic machinery, and application and limitations of selected design aids.

3 Class Hours

Prerequisites: MA 141 Calculus and MT 155 Applied Mechanics

CT 270 Soil Mechanics**4 Credits**

Origin and nature of soil, soil density, sampling, soil water, flow nets and seepage forces. Classification, frost action, stabilization, stress, consolidation, settlement, shearing strength, stability, embankments, dams, retaining walls, piles and underground conduits. The laboratory covers ASTM and AASHTO specifications used in classifying and predicting behavior of soils. **3 Class Hours, 3 Laboratory Hours**

Prerequisite: CT 153 Strength of Materials

CT 273 Environmental Sanitation**4 Credits**

Environmental sanitation including water supplies and treatment, sewerage and sewage treatment, unit operations and refuse sanitation. Laboratories include field trips, design problems in plants, distribution and collection systems.

3 Class Hours, 3 Laboratory Hours

CT 274 Environmental Sanitation**3 Credits**

Communicable diseases, biological and chemical aspects of water and sewage treatment, air pollution and industrial wastes. **2 Class Hours, 3 Laboratory Hours**

Prerequisite: CH 104 Chemistry

CT 283 Route Surveying and Highway Design**4 Credits**

Simple and compound curves, vertical curves, spirals and earthwork. Selected topics in route selection, field technique, route design, construction and maintenance. Computer applications. Term project. **3 Class Hours, 3 Laboratory Hours**

Prerequisites: CT 140 Surveying and MA 141 Calculus

DENTAL HYGIENE

DH 101 Dental Manikin Practice**3 Credits**

Removal of simulated deposits and accretions on the teeth of manikins by use of dental instruments. Proper scaling and polishing techniques, tooth-brushing and general mouth cleanliness are stressed.

1 Class Hour, 4 Laboratory Hours

Prerequisite: DH 140 Oral Anatomy

DH 103 Clinical Dental Hygiene**2 Credits**

Clinical application of DH 101 Dental Manikin Practice.

1 Class Hour, 3 Laboratory Hours

Prerequisite: DH 141 Oral Anatomy

DH 140 Oral Anatomy**3 Credits**

Gross anatomy and normal functions of the teeth, tissue and organs of the oral cavity. **2 Class Hours, 2 Laboratory Hours**

- DH 141 Oral Anatomy 3 Credits**
Continuation of DH 140 Oral Anatomy. **2 Class Hours, 2 Laboratory Hours**
Prerequisite: DH 140 Oral Anatomy
- DH 158 Dental Office Practice 3 Credits**
General dental office procedures, psychology of patient relations, dental assisting and operating room procedure, and the importance to the dental hygienist of being a member of the dental health team. **2 Class Hours, 2 Laboratory Hours**
- DH 204, 205, 206 Clinical Dental Hygiene 4, 4, 4 Credits**
Dental prophylaxis performed on patients, oral observation and inspection, topical application of fluorides, and chairside home care instructions given to patients. Practice in dental assisting, sterilizing techniques, use of cavitron, instrument sharpening, transillumination, charting, completing medical and dental histories. Use and maintenance of dental unit. Off-campus dental office experience in assisting and observation. **1 Class Hour, 12 Laboratory Hours each**
Prerequisites: All Dental Hygiene and Biology courses in terms 1, 2 and 3 for DH 204
DH 204 Clinical Dental Hygiene for DH 205
DH 205 Clinical Dental Hygiene for DH 206
- DH 244 Preventive Dentistry 3 Credits**
Preventive methods for maintaining the health of the mouth and control of dental caries. Detailed studies of the latest methods of caries control through laboratory tests, diet and fluoridation. Study of teeth not in normal occlusion, classification and probable factors causing orthodontic conditions. Introduction to abnormal oral conditions found in children, with possible methods of treatment or correction. **3 Class Hours**
Prerequisites: DH 141 Oral Anatomy and DH 101 Dental Manikin Practice
- DH 251 Dental Radiography 2 Credits**
Proper use of the X-ray machine and accessories. Exposure, development and mounting of dental films. Procedures to safeguard the patient and operator from hazards of radiation. Understanding the use of X-ray in clinical practice of dentistry. **1 Class Hour, 2 Laboratory Hours**
Prerequisite: DH 141 Oral Anatomy
- DH 252 Clinical Dental Radiography 1 Credit**
Clinical application of principles and practices learned in DH 251 Dental Radiography. **2 Laboratory Hours**
Prerequisite: DH 251 Dental Radiography
- DH 253 Clinical Dental Radiography 1 Credit**
Continuation of DH 252 Clinical Dental Radiography. **2 Laboratory Hours**
Prerequisite: DH 252 Clinical Dental Radiography
- DH 254 General and Oral Pathology 2 Credits**
A broad picture of the disease process through a study of common general diseases, their causes, results, treatment. Emphasis on the principles of inflammation, healing and repair. **2 Class Hours**
Prerequisites: BI 159 Microbiology and BI 176 Dental Histology and BI 172 Anatomy and Physiology
- DH 255 General and Oral Pathology 2 Credits**
Oral diseases, their causes, recognition and treatment, with particular emphasis on the application of the principles covered in DH 254 General and Oral Pathology. **2 Class Hours**
Prerequisite: DH 254 General and Oral Pathology

DH 260 Dental Laboratory Practice

3 Credits

An introduction to the restorative phase of dentistry. Dental laboratory procedures by lectures, demonstrations and actual processing of laboratory projects by students. History, property and use of various dental laboratory materials.

2 Class Hours, 2 Laboratory Hours

Prerequisite: DH 141 Oral Anatomy

DH 261 Nutrition

3 Credits

Basic nutrition, essential nutrients, requirements and recommended allowances. The role of dietary intake in an individual's dental health.

3 Class Hours

DH 267 Anesthesia

2 Credits

Principles of general and local anesthetics and patient management.

2 Class Hours

Prerequisites: All preceding DH and BI courses in Terms 1, 2, 3 and 4



Dental Hygiene student using an ultrasonic cavitron while performing a dental prophylaxis on a patient in the College clinic.

DH 268 Special Dental Practice 3 Credits

Various specialty practices in dentistry: periodontia, prosthetics, orthodontics, endodontics, exodontics, oral surgery and maxio-facial surgery. Nature, procedure, differences in types of practices and the role of the dental hygienist in each practice. **3 Class Hours**

Prerequisites: All preceding DH and BI courses in Terms 1, 2, 3, 4 and 5

DH 283 Dental Health Education 3 Credits

Areas and principles for patient instruction in professional and personal care procedures. **3 Class Hours**

Prerequisites: DH 141 Oral Anatomy and DH 103 Clinical Dental Hygiene and BI 159 Microbiology

DH 284 Dental Pharmacology 3 Credits

The action of drugs, their sources, properties, preparation, administration. The mathematics of pharmacy and prescription writing. Therapy of oral conditions. **3 Class Hours**

Prerequisites: BI 172 Anatomy and Physiology and BI 159 Microbiology

DH 287 Public Health 2 Credits

An over-all picture of public health (history, philosophy, environmental sanitation, structure, services) with emphasis on community dental health. Off-campus projects. **2 Class Hours**

ENVIRONMENTAL HEALTH TECHNOLOGY

EH 103 Milk Sanitation 4 Credits

Application of sanitary principles to the production, processing and distribution of milk and milk products. Milk codes and inspection procedures. Field trips to farms and processing plants. **Must be taken concurrently with BI 250 Microbiology**
3 Class Hours, 3 Laboratory Hours

EH 112 Environmental Health 2 Credits

Principles of environmental disease control and their application to the environment. Field trips to various facilities to observe control principles in actual use. **2 Class Hours**

EH 201 Atmospheric Pollution Control 4 Credits

Air pollution in relation to public health. Sources and classification of pollutants, pollution meteorology, sampling and measuring techniques, principles and methods employed in control. **3 Class Hours, 3 Laboratory Hours**

EH 202 Community Sanitation 4 Credits

Urban environmental health problems including refuse sanitation and disposal methods, rodent identification and control methods, principles of healthful housing and housing codes. **3 Class Hours, 3 Laboratory Hours**

EH 203 Food Sanitation 4 Credits

Sanitation in the processing, storage, distribution and serving of food including regulations and inspection procedures. **3 Class Hours, 3 Laboratory Hours**

Prerequisite: EH 103 Milk Sanitation

EH 204 Water Supply and Pollution Control 4 Credits

Development, treatment, distribution of water supplies including development and protection of water sources, principles and methods of water treatment, treatment plant operation and maintenance.

3 Class Hours, 3 Laboratory Hours

Prerequisite: BI 106 Limnology

EH 205 Water Supply and Pollution Control 4 Credits

Collection, treatment, disposal of liquid wastes including composition of sanitary and industrial wastes, principles and methods of treatment and disposal, treatment plant operation and maintenance.

3 Class Hours, 3 Laboratory Hours

Prerequisite: EH 204 Water Supply and Pollution Control

EH 206 Radiological Health 3 Credits

Sources and characteristics of radiation including X-ray generating equipment, principles of radiation biology, principles of radiation protection, radiation regulations and inspection procedures.

2 Class Hours, 3 Laboratory Hours

Prerequisite: PH 110 Radiation Physics

EH 208 Environmental Health Administration 3 Credits

Organization, programs and services of public health departments, including the historical and legal aspects of public health activities. Fundamentals of effective public relations.

2 Class Hours, 2 Laboratory Hours

ELECTRICAL TECHNOLOGY

ET 101, 102, 103 Electrical Shop 2, 2, 1 Credits

A sequence of three courses to familiarize the student with general electrical trade practices and the acquiring of limited basic manipulative skills. Experience in the installation, fabrication and maintenance of electrical equipment. Training in the different electrical circuits used in wiring systems as found in residential and industrial troubleshooting and repair of electrical equipment. Study and practice of fabrication methods, basic manufacturing processes and shop safety practices used in the electrical industry.

1 Class Hour, 3 Laboratory Hours for ET 101

1 Class Hour, 3 Laboratory Hours for ET 102

3 Laboratory Hours for ET 103

Prerequisites: ET 101 Electrical Shop for ET 102

ET 102 Electrical Shop for ET 103

ET 113 Electricity and Magnetism 4 Credits

Characteristics of electrical and electronic circuits founded upon electric and magnetic field concepts.

3 Class Hours, 3 Laboratory Hours

Prerequisite: PH 143 Physics

ET 120 Electrical Circuits 5 Credits

Fundamentals of electrical circuits and application of circuit laws, theorems and measuring techniques.

4 Class Hours, 3 Laboratory Hours

ET 121 Electrical Circuits 5 Credits

Continuation of ET 120 Electrical Circuits emphasizing single phase and poly-phase circuits.

4 Class Hours, 3 Laboratory Hours

Prerequisite: ET 120 Electrical Circuits

ET 127 Electricity 4 Credits

Beginning of a two-term sequence of applied electrical concepts emphasizing DC circuitry and an introduction to electrical machinery. For Mechanical Technology students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: PH 145 Physics

ET 128 Electricity 4 Credits

A continuation of ET 127 Electricity with emphasis on AC circuitry, measurements, power distribution, transformers and AC machines. For Mechanical Technology students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: ET 127 Electricity

ET 129 Electronics 4 Credits

An applied electronics course with related laboratory experiments. An introduction to the theory and operation of electronic components, with emphasis on their applications. For Mechanical Technology students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: ET 128 Electricity

ET 130 Engineering Drawing 1 Credit

Principles of parallel projection. Development of drafting skills to include lettering and proper line construction.

3 Laboratory Hours

ET 131 Engineering Drawing 1 Credit

Shop processes and procedures to facilitate the understanding of drafting practices. Tolerancing, representation of threads and fasteners, preparation of assembly drawings.

3 Laboratory Hours

Prerequisite: ET 130 Engineering Drawing

ET 141 Electricity 3 Credits

Basic course in applied electricity as related to the construction industry. Distribution system, lighting system, heating, motors, generators. Laboratory includes general trade practices, National Electrical Code and safety. For Civil Technology students.

2 Class Hours, 3 Laboratory Hours

Prerequisite: MA 140 College Algebra and Trigonometry

ET 223 Network Analysis 4 Credits

Analysis of complex electrical and electronic networks by the application of Kirchhoff's laws, Thevenin's theorem, Norton's theorem, superposition, vector loci methods, loop and nodal analysis, transfer function techniques. The computer is used as an analytical tool where feasible.

4 Class Hours

Prerequisites: ET 121 Electrical Circuits and ET 113 Electricity and Magnetism

ET 230 Electrical Design 1 Credit

Application of electrical drafting principles to the planning of power layout and lighting design. Manufacturers' catalogs, charts, and the National Electrical Code form essential reference material. Lists of materials and schedules are prepared as parts of each project.

3 Laboratory Hours

Prerequisite: ET 131 Engineering Drawing

ET 231 Electrical Design 1 Credit

Application of drafting principles to electronic circuitry. Student projects include problems typical of those found in the electronics and controls areas.

3 Laboratory Hours

Prerequisites: ET 230 Electrical Design and ET 251 Electronics

ET 240 Electrical Machines**5 Credits**

Theory, operation, application of DC machines and their manual, magnetic and solid state control. Introduction to single and polyphase silicon diode and thyristor rectifiers, their design, characteristics and applications.

4 Class Hours, 3 Laboratory Hours**Prerequisites: ET 121 Electrical Circuits and
ET 113 Electricity and Magnetism****ET 241 Electrical Machines****5 Credits**

Basic theory of single phase and polyphase transformers. Principles of operation and control of AC machines and solid state inverters.

4 Class Hours, 3 Laboratory Hours**Prerequisite: ET 240 Electrical Machines****ET 242 Automatic Controls****5 Credits**

Principles of open and closed loop systems and the theory, operation, application of industrial equipment used in control systems. Associated laboratory permits examination, operation, trouble-shooting of these control devices.

4 Class Hours, 3 Laboratory Hours**Prerequisite: ET 241 Electrical Machines****ET 250 Electronics****5 Credits**

Introduction to electronic building blocks. Characteristics of semiconductor and vacuum devices. Multi-element and special types of active devices.

4 Class Hours, 3 Laboratory Hours**Prerequisites: ET 113 Electricity and Magnetism, ET 121 Electrical Circuits
and MA 141 Calculus****ET 251 Electronics****5 Credits**

Use of electronic building blocks. Semiconductor and vacuum devices in functioning circuitry. Prediction and analysis of performance.

4 Class Hours, 3 Laboratory Hours**Prerequisite: ET 250 Electronics****ET 252 Electronics****5 Credits**

Behavior of large signal devices, graphical analysis, applications of feedback, sinusoidal oscillators, wave shaping, non-sinusoidal oscillators.

4 Class Hours, 3 Laboratory Hours**Prerequisite: ET 251 Electronics****ET 253 Electronics****5 Credits**

Cascaded circuits. Circuits with feedback over several stages, power supplies, counters, functional devices.

4 Class Hours, 3 Laboratory Hours**Prerequisite: ET 252 Electronics****ET 258 Introduction to System Logic****3 Credits**

Logic analysis: application to analog, digital and non-computer areas. Mathematical methods for analysis of computer logic and computer-type problems. Study of building blocks, sub-system and system operations. Periodical laboratory exercises and demonstrations. (Non-electrical and part-time students need faculty approval.)

2 Class Hours, 2 Laboratory Hours**Prerequisites: MA 142 Calculus and
ET 223 Network Analysis**

ET 260 Principles of Industrial Management

3 Credits

Principles of industrial organization and management of plant and personnel. Key topics include product development, work measurement, method analysis, materials control, job analysis, descriptions and evaluation, letters of application and the interview situation.

3 Class Hours

ET 264 Microcircuits

3 Credits

Study of the construction and processing of monolithic integrated circuits including epitaxy, diffusion, wafer processing and photo lithography. Available components, applications and limitations of microcircuits. Thin and thick film devices, testing and interpreting specifications. Economic and reliability considerations. Large scale integration concepts, systems applications, new developments.

3 Class Hours

ET 265 Principles of Solid State Devices

2 Credits

Solid state physical principles as applied to electronic devices.

2 Class Hours

Prerequisite: ET 113 Electricity and Magnetism

Students programming homework on a mini-computer in the Electrical Technology Department.



LIBERAL ARTS

LA 101, 102, 103 Beginning Spanish 4, 4, 4 Credits

Basic principles of grammar and syntax. Emphasis on oral practice in classroom, supplemented by work in audio-lingual laboratory. Reading of graded literary texts.

4 Class Hours, 1 Laboratory Hour each

Prerequisite: LA 101 Beginning Spanish for LA 102

LA 102 Beginning Spanish for LA 103

LA 110, 111, 112 Beginning French 4, 4, 4 Credits

Basic principles of grammar and syntax. Emphasis on oral practice in classroom, supplemented by work in audio-lingual laboratory. Reading of graded literary texts.

4 Class Hours, 1 Laboratory Hour each

Prerequisite: LA 110 Beginning French for LA 111

LA 111 Beginning French for LA 112

LA 119, 120, 121 Beginning German 4, 4, 4 Credits

Basic principles of grammar and syntax. Emphasis on oral practice in classroom and written homework assignments, supplemented by work in audio-lingual laboratory. Reading of graded literary texts.

4 Class Hours, 1 Laboratory Hour each

Prerequisite: LA 119 Beginning German for LA 120

LA 120 Beginning German for LA 121

LA 125, 126, 127 Beginning Italian 4, 4, 4 Credits

Basic principles of grammar and syntax. Emphasis on oral practice in classroom, supplemented by work in audio-lingual laboratory.

4 Class Hours, 1 Laboratory Hour each

Prerequisite: LA 125 Beginning Italian for LA 126

LA 126 Beginning Italian for LA 127

LA 130 English Composition 3 Credits

Enhancement of student's sensitivity to language and provision of a sense of literary tradition through examination of eminent literature. Foundation in expository prose through formulation of opinions and interpretations in writing. Familiarization and practice with research procedures.

3 Class Hours

LA 131 English Composition 3 Credits

Critical and evaluative writing based on ideas found in poetry and prose.

3 Class Hours

Prerequisite: LA 130 English Composition

LA 132 English Composition 3 Credits

Critical and evaluative writing based on ideas found in drama and prose.

3 Class Hours

Prerequisite: LA 131 English Composition

LA 145 Development of Western Civilization 3 Credits

Development of man from the dawn of history, through the classical civilizations of Greece and Rome, to the Middle Ages. For Liberal Arts and Business Administration students.

3 Class Hours

LA 146 Development of Western Civilization 3 Credits

The late Middle Ages (1300) through the beginning of modern times, the age of royal absolutism, the expansion of Europe, and the era of the French Revolution to 1830. For Liberal Arts and Business Administration students.

3 Class Hours

LA 147 Development of Western Civilization 3 Credits

The Industrial Revolution, development of nationalism, the beginning of liberalism, the growth of industrialism, the two World Wars and present-day tensions. Social and cultural trends of the period. For Liberal Arts and Business Administration students. **3 Class Hours**

LA 148 United States History 3 Credits

The United States from colony (1620) to confederation (1775) to republic (1797). The trials of putting the Constitution into practice: beginnings of political parties, increasing sectionalism, the Marshall Court, Manifest Destiny. **3 Class Hours**

LA 149 United States History 3 Credits

Sectional splits (economic, political and social) lead to Civil War and a reconstruction period that does not reconstruct. Sectionalism carrying over into the gilded age as the country becomes industrialized, resulting in problems of labor-management, urbanization, populism, Social and Reform Darwinism, new Manifest Destiny. **3 Class Hours**

LA 150 United States History 3 Credits

First half of the 20th century—the age of contrasts: constant war-talk of peace, peak prosperity to deepest depression, isolation to world concern. Post World War II: a new era—domestic, social, economic and political problems intensifying, expanding role of foreign involvement. **3 Class Hours**

LA 193 Philosophy 3 Credits

Methodology, the principles of deductive and inductive logic, epistemology. For Liberal Arts students. **3 Class Hours**

LA 194 Philosophy 3 Credits

The various systems of thought, including idealism, rationalism, theism, empiricism, positivism, pragmatism, scepticism, existentialism. For Liberal Arts students. **3 Class Hours**

LA 195 Philosophy 3 Credits

Ethics: moral values, rules of conduct and guides to action. Aesthetics: the science of beauty, the rules and principles of art. For Liberal Arts students. **3 Class Hours**

LA 196 Humanities 3 Credits

A critical analysis of man's development from his early beginnings through the classical and medieval periods by a thematic investigation of literature, philosophy, history and the arts. **3 Class Hours**

LA 197 Humanities 3 Credits

A critical analysis of man's development through the Renaissance, metaphysical, neo-classical and romantic periods, by continuing a thematic investigation of literature, philosophy, history and the arts. **3 Class Hours**

LA 198 Humanities 3 Credits

A critical analysis of man's development through the Victorian, early modern and late modern periods, by continuing a thematic investigation of literature, philosophy, history and the arts. **3 Class Hours**

LA 204 Intermediate Spanish 3 Credits

Intensive review and continuation of grammar and syntax. Aural comprehension and oral practice in classroom and audio-lingual laboratory.

3 Class Hours, 1 Laboratory Hour

Prerequisite: LA 103 Beginning Spanish

LA 205 Intermediate Spanish 3 Credits

Intensive and extensive reading of literary works of recognized authors. Classroom discussion based on the texts. Discussions and conversation in Spanish.

3 Class Hours

Prerequisite: LA 204 Intermediate Spanish

LA 206 Intermediate Spanish 3 Credits

Intensive and extensive reading of literary works of recognized authors. Classroom discussion and conversation based on these texts, in the language.

3 Class Hours

Prerequisite: LA 205 Intermediate Spanish

LA 210 Main Currents of Spanish Literature 3 Credits

Lectures on the historic background. Readings and discussions of masterpieces of Spanish literature from the *Cid* to the Golden Age. Voluntary use of audio-lingual laboratory to hear recordings of selected portions of Spanish literary works.

3 Class Hours

Prerequisite: LA 206 Intermediate Spanish

LA 211 Main Currents of Spanish Literature 3 Credits

Lectures on the historic background. Readings and discussions, and reports on representative works from the Golden Age to the present century. Voluntary use of audio-lingual laboratory.

3 Class Hours

Prerequisite: LA 210 Main Currents of Spanish Literature

LA 212 Main Currents of Spanish Literature 3 Credits

Continued lecturing by the instructor on the historic background. Reading, discussion and reports on representative works from the generation of 1898 to contemporary times. Voluntary use of the audio-lingual laboratory.

3 Class Hours

Prerequisite: LA 211 Main Currents of Spanish Literature

LA 213 Intermediate French 3 Credits

Reading and discussion of cultural texts. Continuation of grammar, syntax and oral practice in classroom and audio-lingual laboratory.

3 Class Hours, 1 Laboratory Hour

Prerequisite: LA 112 Beginning French

LA 214 Intermediate French 3 Credits

Intensive and extensive reading of literary works of recognized authors. Continuation of grammar, syntax and oral practices in classroom and audio-lingual laboratory.

3 Class Hours, 1 Laboratory Hour

Prerequisite: LA 213 Intermediate French

- LA 215 Intermediate French 3 Credits**
 Emphasis on composition, with continuation of grammar, syntax and oral practices in the classroom and audio-lingual laboratory.
3 Class Hours, 1 Laboratory Hour
Prerequisite: LA 214 Intermediate French
- LA 216 French Conversation and Composition 3 Credits**
 Practice in oral and written French. Special attention to French phonetics and the modern French idiom. Voluntary use of audio-lingual laboratory. **3 Class Hours**
Prerequisite: LA 215 Intermediate French
- LA 217 Introduction to French Literature 3 Credits**
 Reading, lectures and reports on masterpieces of French literature with cultural and historical implications, from *La Chanson de Roland* through the 18th century.
3 Class Hours
Prerequisite: LA 216 French Conversation and Composition
- LA 218 Introduction to French Literature 3 Credits**
 Further readings, lectures, reports on masterpieces of French literature with their implications, from the 18th century to modern times. **3 Class Hours**
Prerequisite: LA 217 Introduction to French Literature
- LA 222 Intermediate German 3 Credits**
 Emphasis on grammar with difficult problems of syntax and translation. Conversation with audio-visual classes and audio-lingual laboratory work.
3 Class Hours, 1 Laboratory Hour
Prerequisite: LA 121 Beginning German
- LA 223 Intermediate German 3 Credits**
 Introduction to selections from standard authors from the earliest written texts to the 20th century. Essays and reports on readings in German. **3 Class Hours**
Prerequisite: LA 222 Intermediate German
- LA 224 Intermediate German 3 Credits**
 Reading and discussion of original texts of standard authors in the 19th and 20th centuries with cultural and historical implications. Essays and reports on readings in German. **3 Class Hours**
Prerequisite: LA 223 Intermediate German
- LA 225 German Conversation and Composition 3 Credits**
 Readings in current German magazines and newspapers, oral and written reports and discussion in German. Special attention to the modern German idiom.
3 Class Hours, 1 Laboratory Hour
Prerequisite: LA 224 Intermediate German
- LA 226 Introduction to German Literature 3 Credits**
 Readings and discussions of representative selections in German literature from the Old High German period to the 18th century. Lectures and reports.
3 Class Hours
Prerequisite: LA 225 German Conversation and Composition
- LA 227 Introduction to German Literature 3 Credits**
 Further readings and discussions of representative selections in German literature with emphasis on great masters from the 18th century to modern times. Lectures and reports. **3 Class Hours**
Prerequisite: LA 226 Introduction to German Literature

- LA 230 American Literature** **3 Credits**
 History and development of American Literature from the colonial period to the Civil War. Emphasis on several major writers of the period. For Liberal Arts students.
3 Class Hours
- LA 231 American Literature** **3 Credits**
 History and development of American Literature from the Civil War to the early 20th Century. Emphasis on several major writers of the period. For Liberal Arts students.
3 Class Hours
- LA 232 American Literature** **3 Credits**
 History and development of American Literature during the 20th century. Emphasis on several major writers of the period. For Liberal Arts students.
3 Class Hours
- LA 233 English Literature** **3 Credits**
 The history and development of English literature from the Middle Ages to the 17th century. For Liberal Arts students.
3 Class Hours
Prerequisite: LA 132 English Composition
- LA 234 English Literature** **3 Credits**
 The history and development of English literature from the 17th century to the Victorian period. For Liberal Arts students.
3 Class Hours
- LA 235 English Literature** **3 Credits**
 The history and development of English literature from the Victorian period to the present. For Liberal Arts students.
3 Class Hours
- LA 236 Literature of the Western World** **3 Credits**
 First in a three-term sequence concerned with selected materials from that body of world literature that reflects and defines the values of man. Themes of the classical world.
3 Class Hours
- LA 237 Literature of the Western World** **3 Credits**
 Themes and counterthemes from medieval Christianity to the 19th century.
3 Class Hours
- LA 238 Literature of the Western World** **3 Credits**
 Themes of the 19th and 20th centuries.
3 Class Hours
- LA 239 Contemporary Ethics** **3 Semester Credits**
 Main normative and meta-ethical theories of the 20th century, including Moore, Toulmin, Westermarck, Ayer, Dewey, Hare. Examination of the meaning of moral judgments and the criteria of validity, justification of moral beliefs and the grounds of moral responsibility, including objectivism, subjectivism, emotivism, instrumentalism, God and evil.
4½ Class Hours
- LA 240 American Economic History** **3 Semester Credits**
 Discussion of the economic growth and development of the United States. Colonial heritage and the market system. Population, natural resources and technology. Transportation. The capital market. Federal and state governments.
4½ Class Hours

LA 241 Logic 3 Semester Credits

Analysis and practical application of the elements of logic as they apply to thinking on both a linguistic and formal level. Includes forms of argument, informal and formal fallacies, significance of the emotions on decision-making, inductive and deductive processes. **4½ Class Hours**

LA 248 History of Latin America 3 Credits

Pre-Columbian Latin America, the Spanish and Portuguese conquests and the Colonial Period. For Liberal Arts students. **3 Class Hours**

LA 249 History of Latin America 3 Credits

Latin America's wars of independence and the economic and cultural development of the nineteenth century. For Liberal Arts students. **3 Class Hours**

LA 250 History of Latin America 3 Credits

The major Latin American nations in the 20th century in terms of political, economic and social institutions and problems. For Liberal Arts students. **3 Class Hours**

LA 251 Russian and East European History 3 Credits

Survey of Slavic history from early settlements in Kievan Russia and Eastern Europe through major influences of Mongol and Turkish conquests, the rise of Muscovy and the House of Habsburg to the end of the reign of Peter the Great in Russia. **3 Class Hours**

LA 252 Russian and East European History 3 Credits

Major historical developments from 1725 to 1905, which include Russian expansionism, the dual monarchy of Austria-Hungary, the Ottoman Empire in Europe, the fate of Poland and the Russian Revolution of 1905. **3 Class Hours**

LA 253 Russian and East European History 3 Credits

The 20th century problems from both World Wars, the 1917 Bolshevik Revolution, formation of new East European political entities, Soviet hegemony and contemporary issues. **3 Class Hours**

LA 255 Economics 3 Credits

Introduction to the principles and problems of macro-economics, with primary emphasis on unemployment and inflation. Basic characteristics of the American economic system, national income determination, business cycles, fiscal policy, the public debt, money and banking and monetary policy. For Liberal Arts, Business, Executive Secretary and Engineering Science students. **3 Class Hours**

LA 256 Economics 3 Credits

Continuation of macro-economics, with primary emphasis on the causes and effects of economic growth. Introduction to the principles and problems of micro-economics. Price theory and resource allocation. Theory of the firm from competition to monopoly and connecting government policy. For Liberal Arts, Business, Executive Secretary and Engineering Science students. **3 Class Hours**

Prerequisite: LA 255 Economics

LA 257 Economics 3 Credits

Continuation of micro-economics. Income distribution and general equilibrium theory. Current economic problems, international economics, the underdeveloped countries and comparative economic systems. For Liberal Arts, Business, Executive Secretary and Engineering Science students. **3 Class Hours**

Prerequisite: LA 256 Economics

- LA 260 Political Science 3 Credits**
 Analysis of the United States governmental system, with special emphasis on the Constitution and the national governmental structure, organization and functions. For senior Liberal Arts students. **3 Class Hours**
- LA 261 Political Science 3 Credits**
 Study of citizen politics, including a discussion of the Bill of Rights. Role of the mass media and public opinion. Political parties and pressure groups. For senior Liberal Arts students. **3 Class Hours**
Prerequisite: LA 260 Political Science
- LA 262 Political Science 3 Credits**
 Comparative analysis of modern political thought to include a discussion of the development of liberalism, socialism, authoritarianism and the welfare state. For senior Liberal Arts students. **3 Class Hours**
Prerequisite: LA 261 Political Science
- LA 277 Anthropology (Physical) 3 Credits**
 Introduction to human biology, examining genetics and ecology, the primate order, fossil evidence for man's evolution and variation in living populations. **3 Class Hours**
- LA 278 Anthropology (Cultural and Social) 3 Credits**
 Introduction to anthropological theory, analysis of social organization and institutions. Basic linguistics using non-Western societies as illustrations. **3 Class Hours**
Prerequisite: LA 277 Anthropology
- LA 279 Anthropology (Comparative Social Systems) 3 Credits**
 A comparative study of various levels of social complexity, such as the band, tribe, chiefdom and state, with emphasis on cultural evolution and change using data from the archeological record and Western and non-Western societies. **3 Class Hours**
Prerequisite: LA 278 Anthropology
- LA 280 Sociology 3 Credits**
 Sociological facts and principles dealing with the scientific study of human relationships. Emphasis on analysis and study of culture and human society, socialization, groups and group structures. For Liberal Arts, Chemical Technology and degree Nursing students. **3 Class Hours**
- LA 281 Sociology 3 Credits**
 Stratification, collective behavior patterns and the various social institutions including associations, the family and education. The application of sociological principles relating to the agents of social change. For Liberal Arts, Chemical Technology and degree Nursing students. **3 Class Hours**
Prerequisite: LA 280 Sociology
- LA 282 Sociology 3 Credits**
 The structure of the aggregates of population, minority groupings, crime and delinquency, and major changes in technology, urbanism and political structures as they relate to man. For Liberal Arts, Chemical Technology and degree Nursing students. **3 Class Hours**
Prerequisite: LA 281 Sociology
- LA 283 Social Science 3 Credits**
 Problems of public policy. Consideration of the meaning of "liberty" and "equality" in human affairs, values to which the American society presumably is committed. Brief overview of contemporary problems. Limitations imposed by the American political system on the problem-solving capacity of the people. Problems caused by rapid urbanization in "The Modern Metropolis." **3 Class Hours**

LA 284 Social Science**3 Credits**

Problems of public policy continued. Examination of contemporary domestic problems: the racial crisis, women's rights, poverty, the environmental issue.

3 Class Hours**Prerequisite: LA 283 Social Science****LA 285 Social Science****3 Credits**

Problems of public policy continued. America's role in world affairs. Relative to the two topics—"America and the Poor Nations" and "The Resolution of International Conflict"—the questions of what American policy has been and what it should be are raised.

3 Class Hours**Prerequisite: LA 284 Social Science****LA 286 Psychology****3 Credits**

Definition and history of psychology as a science, including systems, fields, methodology. Structure and function of the brain and nervous system, psychogenetics, development of the individual, motivation and emotion. For Liberal Arts and degree Nursing students.

3 Class Hours**LA 287 Psychology****3 Credits**

Sensation, perception, learning, memory, individual differences and their measurement. For Liberal Arts and degree Nursing students.

3 Class Hours**Prerequisite: LA 286 Psychology****LA 288 Psychology****3 Credits**

Ability testing and intelligence, theories of personality, conflict and adjustment, disordered behavior, therapies, mental health. For Liberal Arts and degree Nursing students.

3 Class Hours**Prerequisite: LA 287 Psychology****LA 801 English****3 Credits**

Introduction to the informal study of logic and language. Use of prose to stimulate critical thinking and verbal analysis with subsequent written reaction. Study of basic reading skills to prepare student for sophisticated reading. First in a three-term (one year) offering for students in Associate in Applied Science degree programs.

3 Class Hours**LA 802 English****3 Credits**

Style, tone and diction, and their relationship to the writer's purpose. Intensive practice in the construction of effective sentences, paragraphs and short themes. Second in a three-term (one year) offering for students in Associate in Applied Science degree programs.

3 Class Hours**Prerequisite: LA 801 English****LA 803 English****3 Credits**

Development of analytical reading, critical thinking, effective written communication. Reading of related essays, stories and poems offering a study of universal themes dealing with man, his views of self and society. Third in a three-term (one year) offering for students in Associate in Applied Science degree programs.

3 Class Hours**Prerequisite: LA 802 English****LA 804 Effective Speaking****3 Credits**

Speech communication, through voice, words and action. Voice production, diction, platform presence. Organization of ideas. Practice in presenting speeches of different types.

3 Class Hours

LA 806 Studies in Literature 3 Credits

The four genres of creative literature—poetry, drama, short story and the novel. Analysis with regard to styles and characteristics of each genre as seen in representative British, Continental and American literature. Not available to Liberal Arts students without special permission from the Liberal Arts division director. **3 Class Hours**

LA 810 Psychology 3 Credits

Principles of psychology as they relate to the problems of human behavior and adjustment. Emphasis on growth and development, motivation, emotions, learning, individual differences, behavior disorders, personality and mental hygiene. For students in most Associate in Applied Science degree programs. **3 Class Hours**

LA 820 Economics 3 Credits

Economic facts and principles and their application to the American society. Emphasis on macro-economics: production, consumption, fiscal policy, national income analysis, money and banking. Current economic problems encompassing large-scale enterprise, labor-management relations, international trade, and a comparison of capitalism with other economic systems. For students in most Associate in Applied Science degree programs. **3 Class Hours**

LA 830 Sociology 3 Credits

An issue-centered sociological approach to selected themes that relate to the major concerns confronting American society. The scientific revolution, social organization and survival, population trends, education, and the production and distribution of abundance. For students in most Associate in Applied Science degree programs. **3 Class Hours**

LA 840 Introduction to Philosophy 3 Credits

Basic problems of philosophy, such as *a priori* knowledge, the reality of the physical world, morality, the mind-body relationship, freedom, the supernatural. For students in Associate in Applied Science degree programs. **3 Class Hours**

LA 858 Fine Arts: Introduction to Art 3 Credits

Basic art principles and concepts together with their historical development as shown in representative works of painting, sculpture and architecture. Gallery visits. For Liberal Arts students. **3 Class Hours**

LA 859 Fine Arts: Introduction to Theatre 3 Credits

Art of the theatre, for the purpose of increasing understanding and appreciation of drama. A cultural approach considering the interrelationship of all aspects of production including plays, acting, directing, costume, make-up and lighting. Attendance at local productions. For Liberal Arts students. **3 Class Hours**

LA 860 Fine Arts: Introduction to Music 3 Credits

Basic elements of music common to all forms of musical expression. Emphasis on developing listening habits, which bring the student to an informed awareness and understanding of music. Attendance at concerts and recitals. For Liberal Arts students. **3 Class Hours**

LA 861 17th and 18th Century Music 3 Credits

Music and musical styles of the 17th and 18th centuries. Emphasis upon the composers and their styles and the relationship of music to the social, political and other cultural reforms of the period. For Liberal Arts students. **3 Class Hours**

Prerequisite: LA 860 Fine Arts: Introduction to Music or consent of instructor

LA 862 19th Century Music**3 Credits**

Important musicians and musical styles of the Romantic Period. Emphasis upon the developments in piano literature, the symphony orchestra and opera. Listening to selected recordings and attendance at local concerts form an integral part of the discussions. For Liberal Arts students.

3 Class Hours**Prerequisite: LA 860 Fine Arts: Introduction to Music or consent of instructor****LA 863 20th Century Music****3 Credits**

Important musicians and musical styles in the 20th century. Emphasis upon the trends and developments of music in America as well as a study of leading European composers. For Liberal Arts students.

3 Class Hours**Prerequisite: LA 860 Fine Arts: Introduction to Music or consent of instructor****LA 865, 866 Studio Art****3, 3 Credits**

Basic drawing skills as a foundation for studio work, including black and white medium and color, using a variety of media, and ultimately leading into oils, acrylics and water-color painting. Composition, color, sketching from life and nature, with emphasis on a creative approach to subject matter.

6 Laboratory Hours each

MATHEMATICS

MA 100 Mathematics**3 Credits**

Fundamental operations of real numbers, evaluation of algebraic expressions, rational numbers, fractional expressions, solutions of linear equations, inequalities, factoring, operations with radicals, the quadratic formula. Self-paced, self-study program for Business students.

3 Class Hours**MA 101 Mathematics****3 Credits**

An auto-tutorial independent study self-paced course in intermediate algebra encompassing:

Sets, graphs on the number line, field properties, factoring, fractions, exponents, radicals, solution sets of linear and quadratic equations, relations and fractions, conic sections, variations, inverse functions, logarithms, solution sets of systems and inequalities, determinants and Cramer's rule, binomial theorem, sequences and series, complex number system, permutations, combinations, probability.

3 Class Hours**Prerequisite: MA 100 or equivalent****MA 105 Mathematics****3 Credits**

Summarization of data, fundamentals of probability, probability distributions including the binomial distribution, normal distribution. For students in Environmental Health, Medical Laboratory Technology, Medical Office Assistant, Medical Record Technology and Secretarial programs.

3 Class Hours**Prerequisite: MA 100 Mathematics****MA 113 Introduction to Finite Mathematics****3 Credits**

The real numbers, an introduction to logic and operations with vectors and matrices. For Liberal Arts students.

3 Class Hours**MA 114 Introduction to Finite Mathematics****3 Credits**

Probability, expected value, Markov chains, statistics, normal and chi-square distribution, measures of central tendency, curve fitting and correlation. For Liberal Arts students.

3 Class Hours**Prerequisite: MA 113 Introduction to Finite Mathematics**

- MA 115 Introduction to Finite Mathematics 3 Credits**
 Linear programming, game theory, simplex method, Gauss-Jordan elimination, Fortran. For Liberal Arts students. **3 Class Hours**
Prerequisite: MA 114 Introduction to Finite Mathematics
- MA 120 Finite Mathematics for Business 3 Credits**
 Logic and sets, conjunction, disjunction, negation, conditional, biconditional, tree diagrams. Counting procedures, permutation, combination. Equiprobability, probability spaces, applications to sampling problems, mathematical expectations, conditional probability. For Business Administration students. **3 Class Hours**
Prerequisite: MA 101 Mathematics or equivalent
- MA 121 Finite Mathematics for Business 3 Credits**
 Descriptive statistics, organization and presentation of data, measures of central tendency, variance, standard deviation, standard scores. Statistical inference, estimation, test of hypotheses, confidence interval, normal distribution. Systems of linear equations, algebraic and geometric solutions, matrices. Systems of linear inequalities, linear programming. For Business Administration students. **3 Class Hours**
Prerequisite: MA 120 Finite Mathematics for Business
- MA 122 Introduction to Calculus for Business 3 Credits**
 Differential calculus: real numbers, relations and functions, sequences and series, the derivative, techniques of differentiation, applications, functions of several variables, maxima and minima. For Business Administration students. **3 Class Hours**
Prerequisite: MA 121 Finite Mathematics for Business
- MA 133 Modern Basic Mathematics 3 Credits**
 Basics of set theory and logic used to define and study the operations of addition, subtraction, multiplication and division of whole numbers. For Liberal Arts students; especially recommended for elementary education majors. **3 Class Hours**
- MA 134 Modern Basic Mathematics 3 Credits**
 Algorithms of the arithmetic of whole numbers. Definition and study of arithmetic of integers and rational numbers. Modular arithmetic. For Liberal Arts students. **3 Class Hours**
Prerequisite: MA 133 Modern Basic Mathematics
- MA 135 Modern Basic Mathematics 3 Credits**
 Decimals and real numbers, ratio and proportion, word problems and equations, geometric concepts in plane and space, measurement and error, British and metric system, geometric transformations in the plane, analytic geometry. For Liberal Arts students. **3 Class Hours**
Prerequisite: MA 134 Modern Basic Mathematics
- MA 140 College Algebra and Trigonometry 4 Credits**
 Topics in algebra and trigonometry necessary in technical courses. System of real numbers. Functions in general. Graphs of functions. Exponential, logarithmic and trigonometric functions. Complex numbers, theory of equations. Systems of equations. For students in engineering technologies. **4 Class Hours**
- MA 141 Calculus 3 Credits**
 The derivative, curve sketching, maxima and minima, direction fields, velocity and acceleration, circular functions, the exponential function, integration, applications of integration. **3 Class Hours**
Prerequisite: MA 140 College Algebra and Trigonometry

MA 142 Calculus**3 Credits**

Numerical integration, space geometry, volume, partial derivatives, approximate methods. Techniques of differentiation, applications of derivatives, inverse functions, logarithms.

3 Class Hours**Prerequisite: MA 141 Calculus****MA 150 Principles of Mathematics****4 Credits**

Logic and sets, number fields, rational, real and complex. Integers, mathematical induction, integral domains, rings. Vectors, matrices, determinants, vector spaces, linear transformations. For Liberal Arts students.

4 Class Hours**MA 151 Principles of Mathematics****4 Credits**

Groups, transformation group, isomorphism. Linear equations and inequalities in one and two variables. Simultaneous linear equations and inequalities in two and three variables, matrix solutions of simultaneous equations. Quadratic equations and inequalities in one and two variables, polynomial equations, roots of polynomial equations, equations containing radicals. Functions, relations, inverse functions, algebraic functions, exponential and logarithmic functions. For Liberal Arts students.

4 Class Hours**Prerequisite: MA 150 Principles of Mathematics****MA 152 Principles of Mathematics****4 Credits**

Trigonometric functions of real numbers, graphs, amplitude, period, phase, identities, inverse trigonometric functions, trigonometric functions of angles, complex numbers. Probability, counting procedures, permutations, combinations, distribution, testing hypotheses, expectation. Boolean algebra, algebra of sets. For Liberal Arts students.

4 Class Hours**Prerequisite: MA 151 Principles of Mathematics****MA 160 Calculus with Analytic Geometry****4 Credits**

Inequalities, rectangular coordinate system and an introduction to analytic geometry of lines and conic sections. Functions, limits, continuity. The derivative, differentiation of algebraic functions, inverse functions, applications of the derivative including theory of extremes, differentials. For Liberal Arts students.

4 Class Hours**Prerequisite: MA 152 Principles of Mathematics or consent of instructor****MA 161 Calculus with Analytic Geometry****4 Credits**

Indefinite and definite integrals, fundamental theorem of calculus, applications of integration including area, volume, work, length of plane curve. Analytic geometry including translation and rotation of axes, asymptotes, symmetry, angle between curves. Differentiation and integration of trigonometric, logarithmic and exponential functions. For Liberal Arts students.

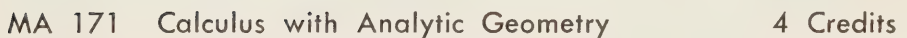
4 Class Hours**Prerequisite: MA 160 Calculus with Analytic Geometry****MA 162 Calculus with Analytic Geometry****4 Credits**

Methods of integration including substitutions, partial fractions and integration by parts. Vectors in the plane including parametric equations, differentiation, curvature and arc lengths. Indeterminate forms, L'Hospital's Rule, improper integrals. Polar coordinates including graphs, differentiation and area. For Liberal Arts students.

4 Class Hours**Prerequisite: MA 161 Calculus with Analytic Geometry****MA 170 Calculus with Analytic Geometry****4 Credits**

Equations of a straight line, rates of change, limits, derivatives of algebraic functions, applications, integration. For Engineering Science students.

4 Class Hours



MA 242 Calculus**3 Credits**

Taylor approximations, power series, improper integrals, higher partial derivatives, vector operations, multiple integrals.

3 Class Hours**Prerequisite: MA 241 Calculus****MA 263 Calculus with Analytic Geometry****4 Credits**

Sequence series, convergence tests, power series, Taylor's theorem. Analytic geometry and vectors in three-dimensional space including equations of lines, scalar products, vector products, equations of planes, differentiation, space curves, surfaces, cylindrical and spherical coordinates. Applications of integration including centroid and moment of inertia of plane region. For Liberal Arts students.

4 Class Hours**Prerequisite: MA 162 Calculus with Analytic Geometry****MA 264 Calculus with Analytic Geometry****4 Credits**

Functions of several variables, limits, continuity, partial derivatives, tangents and normals, directional derivative, gradient, maxima and minima. Multiple integrals and applications including polar coordinates, cylindrical and spherical coordinates. Introduction to differential equations including separation of variables, homogenous and exact equations, linear equations, series solutions and applications. For Liberal Arts Students.

4 Class Hours**Prerequisite: MA 263 Calculus with Analytic Geometry****MA 265 Linear Algebra****4 Credits**

Fields, vector spaces, independence, bases, dimension, linear equations and matrices, the algebra of linear transformations and matrices, determinants. For Liberal Arts students.

4 Class Hours**Prerequisite: MA 264 Calculus with Analytic Geometry****MA 270 Calculus with Analytic Geometry****4 Credits**

Multiple integrals, vector analysis, infinite series, complex numbers and functions. For Engineering Science students.

4 Class Hours**Prerequisite: MA 172 Calculus with Analytic Geometry****MA 271 Differential Equations****3 Credits**

First order differential equations, separable equations, exact equations, integrating factors, second order linear equations, homogeneous and non-homogeneous problems, series solutions. For Engineering Science students.

3 Class Hours**Prerequisite: MA 270 Calculus with Analytic Geometry****MA 272 Differential Equations****3 Credits**

Higher order linear equations, Laplace Transform, systems of first order equations, numerical methods, linear second order boundary value problems, Fourier series, linear second order partial differential equations. For Engineering Science students.

3 Class Hours**Prerequisite: MA 271 Differential Equations**

MEDICAL RECORD TECHNOLOGY

- MR 100 Introduction to Medical Record Science 1 Credit**
Introduction to the historical development of the health care field and to the medical record department. Overview of the medical record profession. Numbering systems and methods. Retention, storage and microfilming of the medical record. For Medical Record Technology students.
2 Laboratory Hours
- MR 102 Medical Terminology 3 Credits**
Medical terminology as correlated with anatomical systems. Suffixes, prefixes and use of medical dictionaries. Introduction to filing and preserving records for Medical Office Assistant students. Course also taken by Medical Record Technology students.
2 Class Hours, 2 Laboratory Hours
- MR 103 Terms and Transcription 4 Credits**
Continuation of MR 102 Medical Terminology. Typing of medical reports and correspondence, use of dictionaries and reference books. For Medical Office Assistant and Medical Record Technology students.
Must be taken concurrently with BI 138 Anatomy and Physiology
2 Class Hours, 4 Laboratory Hours
Prerequisite: MR 102 Medical Terminology
- MR 105 Medical Record Science 4 Credits**
Orientation to various methods of filing and record storage. Analysis of medical records. Preparation of various administrative and medical statistical reports. Admission and registration of patients.
3 Class Hours, 3 Laboratory Hours
Prerequisites: MR 102 Medical Terminology and MA 105 Mathematics
- MR 224 Medical Record Science 4 Credits**
Coding and indexing by various nomenclatures and classification systems. Legal aspects of medical record keeping.
3 Class Hours, 3 Laboratory Hours
Prerequisite: MR 105 Medical Record Science
- MR 225 Medical Record Science 4 Credits**
Methods of efficient medical information, storage and retrieval. Inter- and intra-departmental relations and duties. Accreditation agencies. Knowledge of the medical library. Medical records in extended care facilities.
3 Class Hours, 3 Laboratory Hours
Prerequisite: MR 224 Medical Record Science
- MR 237 Trends in Medical Record Science 2 Credits**
Preparation and discussion of reports from current literature and medical journals. Discussion of the organization, layout and management of a medical record department. New trends in medical record science.
2 Class Hours
Prerequisite: MR 225 Medical Record Science
- MR 244, 245 Medical Record Hospital 4, 4 Credits**
Directed practical experience in the hospital and related affiliation sites. Correlated with lecture and laboratory classes to develop insight and skills into medical record procedures.
16 Laboratory Hours each
Prerequisite: MR 105 Medical Record Science

MECHANICAL TECHNOLOGY

MT 103 Engineering Drawing

2 Credits

Basic course that includes line and instrument exercises, lettering, orthographic projection, dimensioning and notes, auxiliary views, sections, threads and fasteners, assembly drawings and sketching. For Engineering Science students.

6 Laboratory Hours

MT 110 Engineering Drawing

1 Credit

Basic course that includes lettering, line and instrument exercises, orthographic projection, dimensioning and notes, auxiliary views and sections. For Mechanical, Civil and Environmental Health Technology students.

3 Laboratory Hours

MT 111 Engineering Drawing and Descriptive Geometry

2 Credits

Basic rules and practice for drawing threads, fasteners and assemblies including sketching techniques. Principles of descriptive geometry designed to determine true lengths, true size and relationships between lines and surfaces, to find intersections, to ascertain clearances, and to decide relationships affecting the design of parts in a machine or structure.

1 Class Hour, 3 Laboratory Hours

Prerequisite: MT 110 Engineering Drawing

MT 112 Descriptive Geometry

2 Credits

Basic principles of descriptive geometry designed to determine true relationships between lines and surfaces, to find intersections, to locate elements or tangents, to ascertain clearances, or to decide relationships affecting the design of parts in a machine or structure. For Engineering Science students.

1 Class Hour, 2 Laboratory Hours

Prerequisite: MT 103 Engineering Drawing

MT 128 Survey of Engineering Laboratories

3 Credits

A general survey of engineering materials, physical tests and manufacturing processes encountered in mechanical technology laboratories. Lectures, demonstrations and participation in manufacturing processes, casting, welding and forging, metallurgy, precision measurements, quality control, thermodynamics, technical sketching and blueprint reading. For Engineering Secretarial students.

2 Class Hours, 3 Laboratory Hours

MT 130 Manufacturing Processes

3 Credits

Basic manufacturing materials and processes, such as melting and casting metal, powder metallurgy, plastics, elementary aspects of metal cutting machine tools. Practice and study of oxyacetylene, arc, resistance welding. For Mechanical and Civil Technology students.

2 Class Hours, 2 Laboratory Hours

MT 131 Manufacturing Processes

2 Credits

Elements of machine tool operation involving the use of the lathe, miller, shaper, drill press and fundamental bench operations. Study of cutting speeds, feeds, coolants, threads, tapers and tool grinding.

1 Class Hour, 3 Laboratory Hours

Prerequisites: MT 130 Manufacturing Processes and MA 140 College Algebra and Trigonometry and MT 110 Engineering Drawing

MT 132 Manufacturing Processes

2 Credits

Continuation of MT 131 Manufacturing Processes plus operation of the surface grinder and the cylindrical grinder, advanced lathe operations, jig boring, gear cutting, lapping, honing and scraping. Practice and study of turret lathe and automatic screw machine operations.

1 Class Hour, 3 Laboratory Hours

Prerequisite: MT 131 Manufacturing Processes

MT 135 Materials and Processes

4 Credits

Advanced study of the properties and applications of engineering materials and the processes involved in their utilization, including electrical discharge machining, tape-controlled milling and drilling, ultrasonic machining.

3 Class Hours, 3 Laboratory Hours

Prerequisites: MT 130 Manufacturing Processes and MT 165 Metallurgy and MT 257 Strength of Materials

MT 155 Applied Mechanics (Statics)

3 Credits

Free body diagram, trusses, spatial force systems, friction, centroids, moments of inertia, shear and moment diagrams. For Mechanical and Civil Technology students.

3 Class Hours

Prerequisites: MA 140 College Algebra and Trigonometry and PH 143 Physics

MT 156 Applied Mechanics (Dynamics)

3 Credits

Forces and force systems as they influence the motion of solid and fluid bodies. Kinematics, kinematics of rigid bodies, kinetics, work and energy, impulse-momentum, mechanical vibrations.

3 Class Hours

Prerequisites: MA 141 Calculus and MT 155 Applied Mechanics

MT 165 Metallurgy

4 Credits

Fundamentals of the physical metallurgy of ferrous and non-ferrous alloys, investigation of the physical properties of metals, hardness tests, thermal analysis, grain structure examination.

3 Class Hours, 3 Laboratory Hours

Prerequisites: PH 144 Physics and CH 104 Chemistry

MT 220 Mechanical Design

3 Credits

Machine motion and basic mechanisms. Machine motion includes rectilinear and curvilinear displacement, velocity, acceleration. Basic mechanisms include linkages, cams, gears.

2 Class Hours, 3 Laboratory Hours

Prerequisites: MT 111 Engineering Drawing and Descriptive Geometry and MT 156 Applied Mechanics and MT 257 Strength of Materials

MT 221 Mechanical Design

4 Credits

Principles of mechanical design covering the selection of materials, stress investigation, design of fundamental machine elements.

3 Class Hours, 3 Laboratory Hours

Prerequisites: MT 132 Manufacturing Processes and MT 220 Mechanical Design

MT 240 Precision Measurement

2 Credits

Theory and practice of precision measurement of the dimensional character of manufactured parts. Measurement of physical quantities such as time, mass, temperature, flow, pressure and speed which are utilized in the control of physical systems.

1 Class Hour, 3 Laboratory Hours

Prerequisites: MT 132 Manufacturing Processes and PH 145 Physics

MT 257 Strength of Materials

4 Credits

Stress and strain, elasticity, torsion, welded joints, riveted joints, beam stresses, centroids, moments of inertia, shear and moment diagrams. Laboratory work includes strain gauges, tests on wood, metals and plastics conducted in accordance with ASTM and AASHTO standards.

3 Class Hours, 3 Laboratory Hours

Prerequisites: MT 155 Applied Mechanics and MA 142 Calculus

MT 260 Thermodynamics

4 Credits

Laws of thermodynamics and application to changes of state of gases. Properties of gases and the equation of state, property and energy relationships in gas processes and in gas cycles for power and refrigeration, performance of thermal apparatus employing gas processes. Laboratory experiments on thermal processes and apparatus.

3 Class Hours, 3 Laboratory Hours

Prerequisites: AD 120 Fundamentals of Computer Programming and
MT 261 Fluid Mechanics

MT 261 Fluid Mechanics

3 Credits

Behavior of compressible and non-compressible fluids under static and dynamic conditions, including principles of hydrostatics, pressure measurements, flow, flow measurement, viscosity, hydrodynamic power and force.

3 Class Hours

Prerequisites: PH 141 Physics and MA 142 Calculus
and MT 156 Applied Mechanics

MT 262 Thermodynamics

4 Credits

Application of laws of thermodynamics to changes of state of vapors. Properties of vapors, property and energy relationships in vapor processes and in vapor cycles for power and refrigeration, performance of thermal apparatus employing vapors. Heat transfer. Laboratory experiments on fluid flow and thermal processes and apparatus.

3 Class Hours, 3 Laboratory Hours

Prerequisite: MT 260 Thermodynamics

MT 267 Statistical Quality Control

4 Credits

Probability and statistics as they relate to sampling theory and the control of quality in the manufactured product. Standard deviation, areas under, and ordinates of the normal curve, the Poisson, control charts. Single, double and sequential sampling plans, machine capability, product reliability, statistical dimensioning.

3 Class Hours, 2 Laboratory Hours

Prerequisites: MT 240 Precision Measurement and MA 142 Calculus

MT 270 Engineering Materials

3 Credits

Atomic structure, metallic phases, ceramic materials and properties, multi-phase materials and equilibrium relationships, reactions within solid materials, corrosion, oxidation, composite materials. For Engineering Science students.

3 Class Hours

Prerequisites: PH 172 Physics and CH 135 Chemistry

MT 271 Engineering Materials

3 Credits

Mechanical tests, elastic properties, microplasticity of materials, plastic deformation, fracture, strengthening mechanisms. Ceramics and inorganic non-metals, polymers. For Engineering Science students.

3 Class Hours

Prerequisite: MT 270 Engineering Materials

PHYSICAL EDUCATION

PE 100 Physical Education 1 Credit

A sequence of courses to familiarize students with the need for and benefits of physical activity in modern living. A self-evaluation of one's physical condition and potential. Guidance in the selection of physical activities for leisure time use.

Instruction in a variety of carry-over sports, such as archery, badminton, bowling, golf, horseshoes, tennis, weight training. Participation and rudimentary instruction in such team sports as soccer, basketball, volleyball, softball and field hockey, as well as in tumbling, free exercise, dance. Instruction in physical conditioning, beginning swimming, life saving, water safety, skiing, jogging, hiking and camping, Judo-Karate, self-defense.

NOTE: Students enrolled in Physical Education must wear a gym uniform for gym activities.

2 Class Hours

PHYSICS

PH 101 Physical Science 3 Credits

Astronomy: Beginnings of astronomy, the earth and moon, tools and methods of the astronomer, planets and satellites, the sun and other stars, cosmology.

Geology: Composition of the earth's crust, erosion, structural geology. For Secretarial, Accounting, Marketing Management students.

2 Class Hours, 2 Laboratory Hours.

PH 102 Physical Science 3 Credits

Mechanics, heat and sound: linear motion, Newton's laws of motion, circular motion, gravity energy, momentum, wave motion, sound, temperature, heat, change of state, properties of matter.

Electricity and electromagnetic fields: electrostatics, electric field intensity, potential and potential difference, motion of charges, magnetic fields, electromagnetic induction, electromagnetic radiation. For Engineering Secretarial students.

2 Class Hours, 2 Laboratory Hours

PH 106 Physics 3 Credits

Mechanics, heat and sound: linear motion, Newton's laws of motion circular motion, gravitation, energy, momentum, wave motion, sound, temperature, heat, change of state, properties of matter. For Environmental Health, Medical Laboratory and X-ray Technology students.

2 Class Hours, 2 Laboratory Hours

PH 107 Physics 3 Credits

Electricity and electromagnetic waves: electrostatics, electric field intensity, potential, potential difference, motion of charges, magnetic fields, electromagnetic induction, electromagnetic radiation.

Optics: Nature and speed of light, reflection, refraction, mirrors, thin lenses, optical instruments. For Environmental Health, Medical Laboratory and X-ray Technology students.

2 Class Hours, 2 Laboratory Hours

Prerequisite: PH 106 Physics

PH 110 Physics (Radiation) 3 Credits

Photon and charged-particle interactions with matter, radioactive processes, neutrons, activation analysis, theory and operation of radiation detecting instruments, basic criteria for radiation measurement, radiation hazards and protection. For Environmental Health, Medical Laboratory and X-ray Technology students.

2 Class Hours, 2 Laboratory Hours

Prerequisites: MA 101 Mathematics and PH 106 Physics

PH 113 Physical Science

4 Credits

Copernican and Ptolemaic models of the solar system. The planets, sun, moon and comets. Stellar evolution. Modern developments in astronomy and cosmology. For Business Administration and Liberal Arts students

3 Class Hours, 2 Laboratory Hours

PH 114 Physical Science

4 Credits

Newton's laws of motion and gravitation. Acceleration due to gravity and circular motion. Matter and heat, gas laws, waves and wave motion. For Business Administration and Liberal Arts students.

3 Class Hours, 2 Laboratory Hours

Prerequisite: PH 113 Physical Science

PH 115 Physical Science

4 Credits

Crystal structure and classification. Identification of common minerals from their characteristic properties. Rocks and composition of crust. Volcanoes, erosion, structural geology, earthquakes, geologic dating, unconformities. For Business Administration and Liberal Arts students.

3 Class Hours, 2 Laboratory Hours

Prerequisite: PH 114 Physical Science

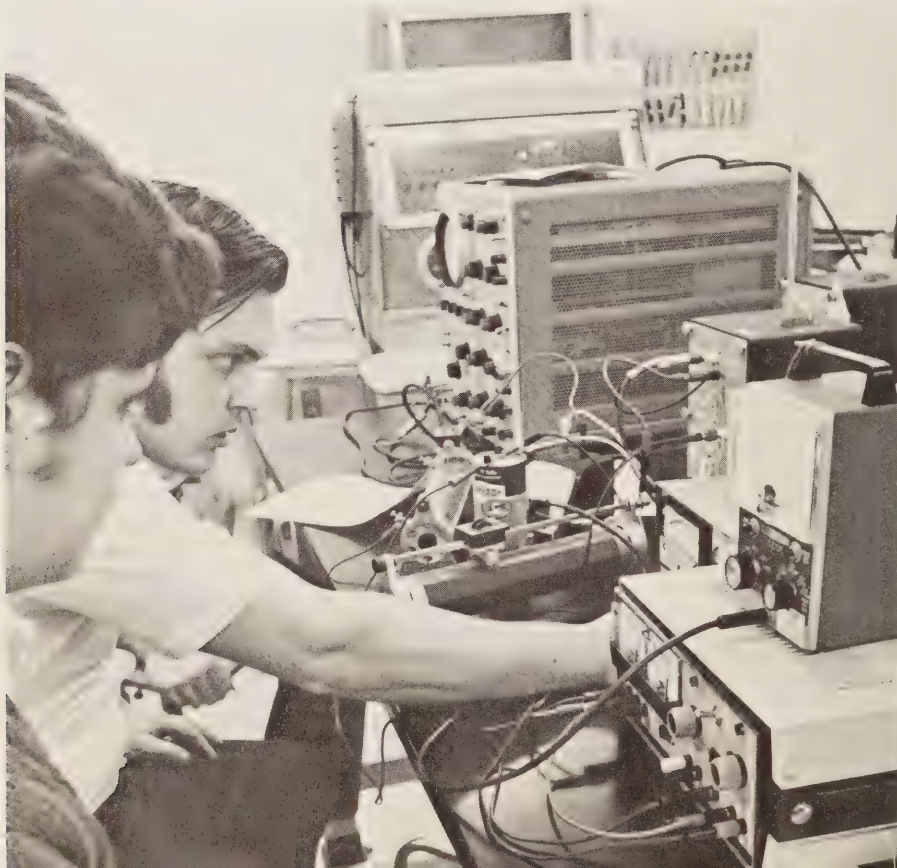
PH 116 Physical Science

4 Credits

Methods of measurement and the development of the wave model of light. Use of the wave model to study crystal structure, force and motion and acceleration due to gravity. PSNS approach (Physical Science for Non-Science majors in Liberal Arts.)

3 Class Hours, 2 Laboratory Hours

Students taking data during an experiment in the radiation laboratory.



PH 117 Physical Science**4 Credits**

Kinetic and potential energy and the principle of conservation of energy. Thermal energy and the kinetic-molecular model of gases. Electrical forces, binding forces in crystals and electrical current. Atomic structure and the shell model of the atom. PSNS approach (Physical Science for Non-Science majors in Liberal Arts.)

3 Class Hours, 2 Laboratory Hours
Prerequisite: PH 116 Physical Science

PH 118 Physical Science**4 Credits**

Electrical properties of melts and solutions. Ions and ionic crystals. Sizes and mass of atoms and molecular bonding. Non-ionic material, carbon compounds, hydrogen bonding and the metallic model. PSNS approach (Physical Science for Non-Science majors in Liberal Arts).

3 Class Hours, 2 Laboratory Hours
Prerequisite: PH 117 Physical Science

PH 143 Physics (Mechanics)**4 Credits**

Composition and resolution of vectors, equilibrium, concurrent and non-concurrent forces, friction, statics, elastic forces, kinematics. Motion: linear, projectile, curvilinear, rotational. For Engineering Technology students.

3 Class Hours, 2 Laboratory Hours

PH 144 Physics (Mechanics, Heat, Sound, Light)**5 Credits**

Work, energy, power, impulse and momentum, oscillatory motion, thermometry, thermal expansion, thermodynamics, change of phase, heat transfer. Wave motion, intensity and quality of sound waves. Light, photometry, geometrical optics, reflection and refraction, nature of light. For Engineering Technology students.

4 Class Hours, 2 Laboratory Hours
Prerequisite: PH 143 Physics

PH 145 Physics (Electricity and Magnetism)**4 Credits**

Coulomb's law, electric fields, potential energy and potential, DC and AC circuits, electrolysis, magnetism, electromagnetic theory and applications. For Engineering Technology students.

3 Class Hours, 2 Laboratory Hours
Prerequisite: PH 143 Physics

PH 160 Physics**4 Credits**

Forces, time, motion, kinematics with vectors, matter and energy. Vibrations, wave superposition, standing waves, wave propagation, geometric and physical optics. For Liberal Arts students.

3 Class Hours, 2 Laboratory Hours

PH 161 Physics**4 Credits**

Dynamics, energy transfer and conservation, kinetic theory of gases, momentum, universal gravitation. Electrostatics, Ohm's law, electric and magnetic fields, electromagnetic induction, oscillating circuits, Maxwell's equations. For Liberal Arts students.

3 Class Hours, 2 Laboratory Hours
Prerequisite: PH 160 Physics

PH 162 Physics**4 Credits**

Relativity, detection of atomic particles and atoms, photons, matter waves. The Bohr atom, quantum mechanics, the atomic nucleus, radioactivity, nuclear conservation laws. For Liberal Arts students.

3 Class Hours, 2 Laboratory Hours
Prerequisite: PH 161 Physics

PH 170 Physics (Mechanics)

4 Credits

Statics and dynamics: vectors, particle kinematics, motion in a plane, particle dynamics, Newton's laws of motion, friction, centripetal forces. Work and energy, impulse and momentum, principles of conservation of energy and momentum, collision phenomena, rotational kinematics, torque, rotational dynamics of rigid body. For Engineering Science students.

Concurrent enrollment in MA 170 Calculus with Analytic Geometry required.

3 Class Hours, 3 Laboratory Hours

PH 171 Physics (Mechanics and Heat)

4 Credits

Oscillations, gravitation, fluid statics and dynamics, waves in elastic media. Temperature, calorimetry, heat transfer, fusion, vaporization, elementary thermodynamics and kinetic theory. For Engineering Science students.

3 Class Hours, 3 Laboratory Hours

**Prerequisites: PH 170 Physics and
MA 170 Calculus with Analytic Geometry**

PH 172 Physics (Electricity and Magnetism)

4 Credits

Fundamental laws of electric and magnetic fields with application to elementary circuit problems. Electrostatic fields, induced emfs, inductance, capacitance, dielectrics, steady currents, simple transients. Laboratory work consists of electrostatic, electromagnetic and circuit measurements. For Engineering Science students.

3 Class Hours, 3 Laboratory Hours

**Prerequisites: PH 171 Physics and
MA 171 Calculus with Analytic Geometry**

PH 192 Statics

4 Credits

Concepts of forces, moments and couples in static force systems through a vector approach. For Engineering Science students.

4 Class Hours

**Prerequisites: PH 171 Physics and
MA 172 Calculus with Analytic Geometry**

PH 210 Electrical Circuits

4 Credits

Basic electrical terminology and circuit components: fundamental circuit laws, Kirchhoff's Laws. Resistive networks: source representation and conversion, loop and nodal analysis, superposition, Thevenin's Theorem. Network responses: natural and forced responses, initial conditions, complete response. Exponential excitation and the S-plane: Kirchhoff's Laws with exponential excitation. Driving point impedance and admittance, poles and zero, S-plane diagrams. Periodic excitation functions: RMS or effective currents and voltages, algebra of complex numbers, the phasor method. Steady state AC circuits: loop and node methods, Thevenin's Theorem, power and reactive power, maximum power transfer, three phase voltages, currents and power, wye and delta connected circuits, analysis of balanced three phase circuits. Digital and analog computer solution of circuit problems. For Engineering Science students.

3 Class Hours, 3 Laboratory Hours

**Prerequisites: PH 172 Physics and
MA 270 Calculus with Analytic Geometry**

PH 211 Electrical Circuits

4 Credits

Exponential Fourier Series and the Fourier Integral: Fourier transform pair. Frequency response: response to non-sinusoidal periodic functions, resonance phenomena, real and complex frequency, graphical display of frequency response characteristics, four terminal networks. The Laplace Transformation: Laplace Transform pair, tables of transform pairs, circuit solutions, partial fractions, initial value theorem, inverse transformation. Magnetic circuits and transformers. Nature of electronics: electronic devices, electronic structure of matter, semiconductors, the p-n junction, circuit characteristics of diodes, physical characteristics of junction transistors, static characteristics of transistors, biasing and graphical analysis, transistor circuit models, single stage electronic circuits. For Engineering Science students.

3 Class Hours, 3 Laboratory Hours

Prerequisites: PH 210 Electrical Circuits and
MA 270 Calculus with Analytic Geometry

PH 270 Physics (Light and Sound)

4 Credits

Wave motion as applied to sound acoustical phenomena. Geometrical optics, optical parts, optical instrumentation. Physical optics, nature of light, interferometry, polarization of light. For Engineering Science students.

3 Class Hours, 3 Laboratory Hours

Prerequisites: PH 172 Physics and
MA 172 Calculus with Analytic Geometry

PH 271 Physics (Atomic)

4 Credits

Special theory of relativity, quantum description of waves and particles, atomic structure, Schroedinger's equation, quantum theory of atoms, Zeeman effect, electron spin, Pauli's exclusion principle, the periodic table, atomic spectra. For Engineering Science students.

3 Class Hours, 3 Laboratory Hours

Prerequisites: PH 172 Physics and
MA 270 Calculus with Analytic Geometry

PH 272 Physics (Nuclear)

4 Credits

Nucleons and nuclear force, binding energy and stability of nuclei, nuclear models, radioactive growth and decay laws, natural radioactivity, decay modes. Nuclear accelerators, low-energy nuclear reactions, fission and fusion, elementary particles, molecular and solid state physics. For Engineering Science students.

3 Class Hours, 3 Laboratory Hours

Prerequisite: PH 271 Physics

PH 280 Astronomy

4 Credits

Fundamentals of astronomy including the earth's motion, earth satellite, the planets and the solar system, stellar structure and the sidereal universe. The laboratory stresses practical aspects of astronomy, the use of the telescope and observing techniques. For Engineering Science students. Liberal Arts students may take this course with no laboratory for 3 credits.

3 Class Hours, 3 Laboratory Hours

Prerequisite: MA 142 Calculus

PH 290 Dynamics

4 Credits

Introduction to vector calculus, vectors in curvilinear coordinate systems. Particle motion, particle dynamics, harmonic forces, force fields, the two body problem. Relative motion, dynamics of plane systems, impulse-momentum theorems and energy theorems for the rigid body. For Engineering Science students.

4 Class Hours
Prerequisite: PH 192 Statics

NURSING

RN 121 Nursing (Meeting Basic Human Needs) 6 Credits

Techniques in meeting basic human needs. Nursing, observation and communication skills. Care, safety and comfort of hospitalized persons. Applications directed toward maintenance of a therapeutic environment considering individual needs. Related clinical experiences and field trips. **4 Class Hours, 6 Laboratory Hours**

RN 123 Nursing (Beginning of Life Cycle) 6 Credits

Principles of normal growth and development from conception to early adulthood, including the maternal cycle. Related clinical experiences and field trips to assist the student in understanding the life cycle in normalcy and stress.

4 Class Hours, 6 Laboratory Hours
Prerequisite: RN 121 Nursing

RN 124 Nursing (Continuation of Life Cycle) 6 Credits

Meeting normal needs of families from early adulthood through middle age, continuing through the later maturing years. Emphasis on normal development and adaptation to stress. Field trips to community agencies and clinical experiences.

4 Class Hours, 6 Laboratory Hours
Prerequisite: RN 123 Nursing

RN 224 Nursing 10 Credits **(Assessment of Problems Resulting From Stress)**

Assessing nursing care needs of individuals experiencing physiological and/or psychological stress. Problems of acute and chronic illness. Methods of maintaining a therapeutic environment. Appropriate clinical experiences and field trips.

6 Class Hours, 12 Laboratory Hours
Prerequisites: RN 124 Nursing and
BI 138 Anatomy and Physiology

RN 225 Nursing 10 Credits **(Assessment of Problems Resulting From Stress)**

Continuation of RN 224 Nursing (Assessment of Problems Resulting from Stress). Care of persons with more complex physiological and/or psychological stress problems. Emphasis on persons faced with multiple stress situations. Utilization of community facilities in assisting individuals to cope with problems of stress. Appropriate clinical experiences and field trips.

6 Class Hours, 12 Laboratory Hours
Prerequisite: RN 224 Nursing

RN 226 Nursing 10 Credits **(Assessment of Problems Resulting From Stress)**

Nursing care for individuals with complex physiological and/or psychological stress. Methods of establishing and maintaining a therapeutic environment. Long range plans to return individuals to the community through rehabilitation and use of available facilities. Appropriate clinical experiences and field trips.

6 Class Hours, 12 Laboratory Hours
Prerequisite: RN 225 Nursing

RN 235 Trends in Nursing

1 Credit

An integrated survey of the historical development, cultural heritage and social foundations in nursing. Study of professional organizations and responsibilities of the professional nurse. A discussion of modern day issues and problems facing nursing education and nursing service and the force of society affecting them.

2 Laboratory Hours

**Prerequisite: RN 224 Nursing
or permission of instructor**

RN 236 Trends in Nursing

1 Credit

A problem-solving approach to the nurse's responsibilities in meeting the needs of her profession as a member of a health team in a changing society. Discussion of community responsibilities of professional people.

2 Laboratory Hours

Prerequisite: RN 235 Trends in Nursing

X-RAY TECHNOLOGY

Radiographic technique consists of experience in the radiology department of a cooperating hospital. Observation and practice in positioning the sick and injured patient, obtaining the exact radiograph requested by the physician and assisting in the treatment of disease. Film exposure time, film manipulation and the finished radiograph are critically studied. Throughout the two academic years and summer sessions certain approved radiographs must be completed. These by location include radiographs of extremities, gastrointestinal tract, urinary tract (intravenous and retrograde pyelograms, urethrograms), skull (sinuses, facial bones, mandible), spine, pelvis (hips, hipnailing), shoulder, thoracic cage and cavity (lungs and heart, sternum).

XR 141, 142, 143 Hospital Radiographic Technique

2, 4, 4 Credits

Practice in positioning, radiographic exposure and film critique in the radiology department of a cooperating hospital. (XR 141 for half-term only).

These three courses must be taken concurrently with XR 171, 172, 173

Radiography, respectively.

16 Laboratory Hours each

XR 144 Hospital Radiographic Technique

Summer practice in radiographic technique and film critique at cooperating hospital. A graduation requirement.

40 Hours in Hospital X-ray Area

**Prerequisites: XR 143 Hospital Radiographic Technique and
XR 173 Radiography**

XR 150 Orientation

1 Credit

Orientation to the college and the clinical area. History, ethics and protection of significance to the radiologic technologist. (Half-term only).

2 Class Hours

XR 151 Patient Care and Medical Terminology

1 Credit

Use of correct medical terminology for radiologic technologists. Patient care procedures routinely used in departments of radiology.

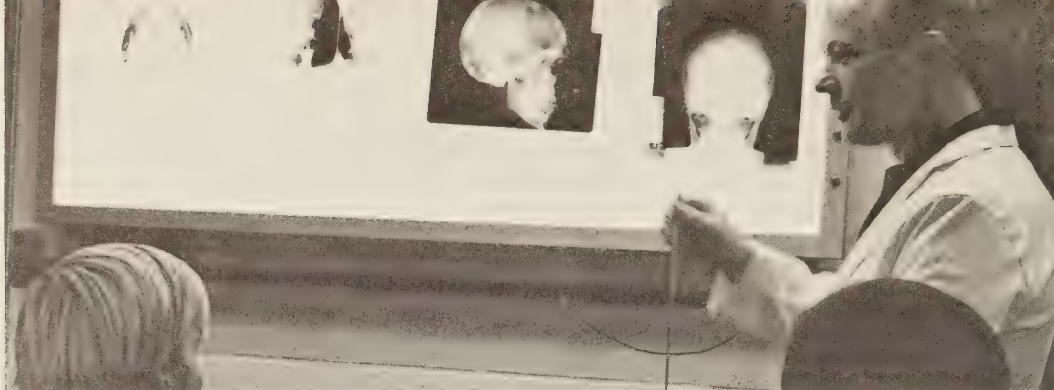
2 Laboratory Hours

XR 152 Ethics and Radiation Protection

1 Credit

Professional ethics and principles of protection of the patient and the technologist from ionizing radiation.

1 Class Hour



Instructor conducting a film critique with X-ray Technology students.

XR 171 Radiography

4 Credits

Introduction to principles of radiographic exposure techniques, patient positioning in radiography, film handling and processing.

Must be taken concurrently with XR 141 Hospital Radiographic Technique

3 Class Hours, 2 Laboratory Hours

XR 172 Radiography

4 Credits

Study of routine radiographic positioning in reference to position of patient and proper adjustment of X-ray equipment and film. Use of contrast media and evaluation of radiographs.

Must be taken concurrently with XR 142 Hospital Radiographic Technique

3 Class Hours, 2 Laboratory Hours

Prerequisite: XR 171 Radiography

XR 173 Radiography

4 Credits

Advanced instruction in development and effective use of radiographic exposure techniques in producing a satisfactory X-ray examination with and without contrast media.

Must be taken concurrently with XR 143 Hospital Radiographic Technique

3 Class Hours, 2 Laboratory Hours

Prerequisite: XR 172 Radiography

XR 244, 245, 246 Hospital Radiographic Technique

6, 6, 6 Credits

Advanced practice in radiographic technique and film critique.

XR 244, XR 245 and XR 246 must be taken concurrently with XR 274, XR 275 and XR 276 Radiography, respectively.

24 Laboratory Hours each

Prerequisites: XR 144 Hospital Radiographic Technique and

XR 173 Radiography

XR 247 Hospital Radiographic Technique

Summer practice in advanced radiographic technique and film critique. A graduation requirement.

40 Hours in Hospital X-ray Area

Prerequisite: XR 246 Hospital Radiographic Technique

XR 251 Pediatric Radiography

1 Credit

Special techniques and problems encountered in radiographing children and infants.

1 Class Hour

Prerequisite: XR 172 Radiography

- XR 252 Departmental Administration** **1 Credit**
 Fundamentals of departmental management techniques. **1 Class Hour**
Prerequisite: Senior Year Status required
- XR 253 Trends in Radiologic Technology** **2 Credits**
 Preparation of the technical report and its organization for both written and oral presentation. Readings in current literature and journals. Occasional guest lecturers. **2 Class Hours**
Prerequisite: XR 275 Radiography
- XR 254 Radiotherapy** **2 Credits**
 Effects of radiation on normal and malignant tissues, various modalities of radiation therapy and patient care and protection. **2 Class Hours**
Prerequisite: PH 110 Physics
- XR 255 Nuclear Medicine** **1 Credit**
 Basic diagnostic tests utilizing radioisotopes. **1 Class Hour**
Prerequisite: PH 110 Physics
- XR 256 Medical and Surgical Diseases** **2 Credits**
 Introductory physiopathology including definitions, nature and cause of diseases, as well as lesions affecting organs and systems. Techniques related to examinations where pathological conditions exist. **2 Class Hours**
Prerequisite: XR 245 Hospital Radiographic Technique and XR 275 Radiography
- XR 274 Radiography** **4 Credits**
 Continues XR 173 with advanced positioning techniques involving skull, facial bones, sinuses, mastoids, viscera.
Must be taken concurrently with XR 244 Hospital Radiographic Technique
3 Class Hours, 2 Laboratory Hours
Prerequisite: XR 173 Radiography
- XR 275 Radiography** **4 Credits**
 Basic concepts of techniques and instrumentation of specialized radiographic procedures, including arteriography, rapid film changers, tomography. Also intra-oral radiography. **3 Class Hours, 2 Laboratory Hours**
Prerequisite: XR 274 Radiography
- XR 276 Radiography** **4 Credits**
 Concludes positioning and exposure techniques, development and use of technique and tube rating charts, routine maintenance of X-ray equipment, relationship between proper operation of X-ray machines and satisfactory radiographs. **3 Class Hours, 2 Laboratory Hours**
Prerequisite: XR 275 Radiography

COLLEGIATE STUDIES CERTIFICATE COURSES

- CS 101 Physical Science** **6 Credits**
 Introductory course of a three-term sequence. The concepts of dynamics and statics. Motion, forces, impulse and momentum, work and energy. **6 Class Hours**
- CS 102 Physical Science** **6 Credits**
 Heat and the extension of the principle of conservation of energy, covering approximately one-half term. Then the course is divided into a three-hour course on theories of fields in electricity and magnetism, and a three-hour course on the structure of matter and an introduction to chemistry. **6 Class Hours**
Prerequisite: CS 101 Physical Science

- CS 103 Physical Science** **3 Credits**
 Further elaborations of fields and their applications, introductory quantum physics of light and matter, atomic structure and the nucleus. **3 Class Hours**
Prerequisite: CS 102 Physical Science
- CS 104 Survey of Science** **3 Credits**
 The generalization of basic chemical-physical concepts and their application to man's environment. **3 Class Hours**
Prerequisite: CS 142 Preparatory Chemistry
- CS 108 Basic Algebra** **4 Credits**
 Basic operations with real numbers and algebraic expressions. Solutions of linear systems and quadratic equations. Introductory graphical representation. **4 Class Hours**
- CS 109 Basic Algebra** **3 Credits**
 Radicals and their application, logarithms, simple exponential equations and introductory analytic geometry. **3 Class Hours**
Prerequisite: CS 108 Basic Algebra
- CS 110, 111, 112 Elements of Technical Mathematics** **5, 5, 5 Credits**
 A three-term sequence of integrated mathematics involving a mature treatment of the topics of algebra, trigonometry and some analytic geometry. Special attention to technical computations using the slide rule, logarithms, scientific notation and dimensional analysis. **5 Class Hours each**
- CS 113 Plane Trigonometry** **3 Credits**
 A fundamental course encompassing trigonometric functions and applications. Sine, cosine and tangent functions, reciprocal functions, fundamental relations between the trigonometric functions, graphical methods, solutions of triangles. **3 Class Hours**
Prerequisite: CS 109 Basic Algebra or Intermediate Algebra
- CS 120 Technical Calculations** **2 Credits**
 Technical problem solving, applying principles and concepts of the students' concurrent courses in mathematics and CS 101 Physical Science. **4 Laboratory Hours**
- CS 121 Technical Calculations** **2 Credits**
 Concurrent with CS 102 Physical Science. Problems involving heat and energy. At approximately mid-term the course is divided into two two-hour sessions emphasizing problems in chemistry and electricity, respectively. **4 Laboratory Hours**
Prerequisite: CS 120 Technical Calculations
- CS 122 Technical Calculations** **1 Credit**
 Concurrent with CS 103 Physical Science. Problems involving theories of fields, elementary quantum theory, theories of atomic structure and the nucleus. **2 Laboratory Hours**
Prerequisite: CS 121 Technical Calculations
- CS 130 Engineering Drawing** **1 Credit**
 Fundamentals of Engineering Drawing: simple multiview drawing and sketching, with stress on accuracy and neatness in lettering and linework. **3 Laboratory Hours**

- CS 131 Engineering Drawing** **1 Credit**
 Orthographic projection, auxiliary views, section views, pictorial drawing, free hand drafting with continued emphasis on accuracy and neatness.
3 Laboratory Hours
Prerequisite: CS 130 Engineering Drawing
- CS 132 Engineering Drawing** **1 Credit**
 Threads and fasteners, welding drawings, working drawings, assemblies, exploded views. Continued emphasis on accuracy and neatness.
3 Laboratory Hours
Prerequisite: CS 131 Engineering Drawing
- CS 140 Chemistry** **4 Credits**
 Rudiments of electrochemistry, thermochemistry, solutions, atomic structure and bonding, descriptive coverage of the more common elements and families.
3 Class Hours, 2 Laboratory Hours
Prerequisite: CS 102 Physical Science
- CS 141, 142 Preparatory Chemistry** **4, 4 Credits**
 A two-quarter sequence of preparatory chemistry intended to satisfy the entrance requirements for biological and health science oriented programs.
3 Class Hours, 2 Laboratory Hours each
- CS 150 Communication Skills** **3 Credits**
 To help the student improve his mastery of study and reading skills. Two sessions weekly devoted to reading skills and one to study skills.
3 Class Hours
- CS 151 Communication Skills** **3 Credits**
 To improve the student's mastery of writing English. Concentration on grammar, sentence structure, spelling, punctuation and the recognition and correction of common errors in basic English elements.
3 Class Hours
- CS 152 Communication Skills** **3 Credits**
 Students practice the skills learned in CS 151 Communication Skills and also apply that knowledge to analyze sample writings of recognized authors in technical and other types of communication.
3 Class Hours
- CS 153 Verbal Reasoning** **3 Credits**
 The first in a three-term sequence designed to improve the student's ability in reasoning. Concentration on qualification, structures and operations, abstractions, signs, symbols and ambiguity.
3 Class Hours
- CS 154 Verbal Reasoning** **3 Credits**
 Concentration on analysis, classification, semantic growth, irony and generalization.
3 Class Hours
Prerequisite: CS 153 Verbal Reasoning
- CS 155 Verbal Reasoning** **3 Credits**
 Concentration on analogies, metaphors, definition, comparison, induction, deduction and problem-solving.
3 Class Hours
Prerequisite: CS 154 Verbal Reasoning
- CS 156 Human Potential** **1 Credit**
 Human potential focuses on the person's own resources, strengths, motivators, values and successful and satisfying experiences. Human potential sessions are structured-positive group experiences working on and with the potential and strengths of the participants. Emphasis on integration of thinking and feeling concerning one's self and others by utilizing specific procedures.
1 Class Hour

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GARY FINCH
Manager
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SEBASTIAN V. MARTORANA—Vice-Chancellor for Two-Year Colleges

KENNETH T. DORAN—Associate University Dean for Two-Year Colleges

Broome Community College is one of the 74 colleges that comprise the State University of New York (SUNY), which was established by the State Legislature in 1948. Its 74 units include 38 locally-sponsored two-year community colleges like Broome.

In addition, there are four university centers, two medical centers, 12 colleges of arts and sciences, three specialized colleges, five statutory colleges, a non-residential college and six two-year agricultural and technical colleges. Together they offer students a choice of more than 3,000 academic specializations representing more than 1500 different degree programs.

Graduate programs are offered in 22 of the four-year colleges, with 12 of them having advanced graduate study leading to the doctoral degree.

Although the campuses of the State University are separated geographically, all are united in their purpose—to improve and extend opportunities for youth to continue their education after high school. The geographic separation, moreover, enables students to enjoy the advantages of attending relatively small colleges, even though State University is one of the largest state universities in the country.

State University is guided by its motto: "Let Each Become All He Is Capable of Being."

It is governed by a Board of Trustees, which is appointed by the Governor. Its function is to plan the total development of state-supported higher education. But each of its colleges is locally administered. Students, therefore, should write directly to the college in which they are interested for admission forms and information.

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State University at Buffalo
State University at Stony Brook

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Downstate Medical Center at Brooklyn
Upstate Medical Center at Syracuse

COLLEGES OF ARTS AND SCIENCE

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College at Buffalo
College at Cortland
College at Fredonia
College at Geneseo
College at Old Westbury

College at New Paltz
College at Oneonta
College at Oswego
College at Plattsburgh
College at Potsdam
College at Purchase

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College of Optometry in New York City
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Alfred
Canton

Cobleskill
Delhi

Farmingdale
Morrisville

COMMUNITY COLLEGES (Locally sponsored two-year colleges under State University)

Adirondack Community College
Glens Falls
Auburn Community College
Auburn
Borough of Manhattan Community College
New York City (Manhattan)
Bronx Community College
New York City (Bronx)
Broome Community College
Binghamton
Clinton Community College
Plattsburgh
Columbia-Greene Community College
Athens
Community College of the Finger Lakes
Canandaigua
Corning Community College
Corning
Dutchess Community College
Poughkeepsie

Erie Community College
Buffalo
Fashion Institute of Technology
New York City (Manhattan)
Fulton-Montgomery Community College
Johnstown
Genesee Community College
Batavia
Herkimer County Community College
Ilion
Hostos Community College
New York City (South Bronx)
Hudson Valley Community College
Troy
Jamestown Community College
Jamestown
Jefferson Community College
Watertown
Kingsborough Community College
New York City (Brooklyn)

(Continued on next page)

State University of New York Campuses (cont'd)

LaGuardia Community College
New York City (Long Island City)

Mohawk Valley Community College
Utica

Monroe Community College
Rochester

Nassau Community College
Garden City

New York City Community College
New York City (Brooklyn)

Niagara County Community College
Niagara Falls

North Country Community College
Saranac Lake

Onondaga Community College
Syracuse

Orange County Community College
Middletown

Queensborough Community College
New York City (Queens)

Rockland Community College
Suffern

Schenectady County Community
College
Schenectady

Staten Island Community College
New York City (Staten Island)

Suffolk County Community College
Selden

Sullivan County Community College
South Fallsburg

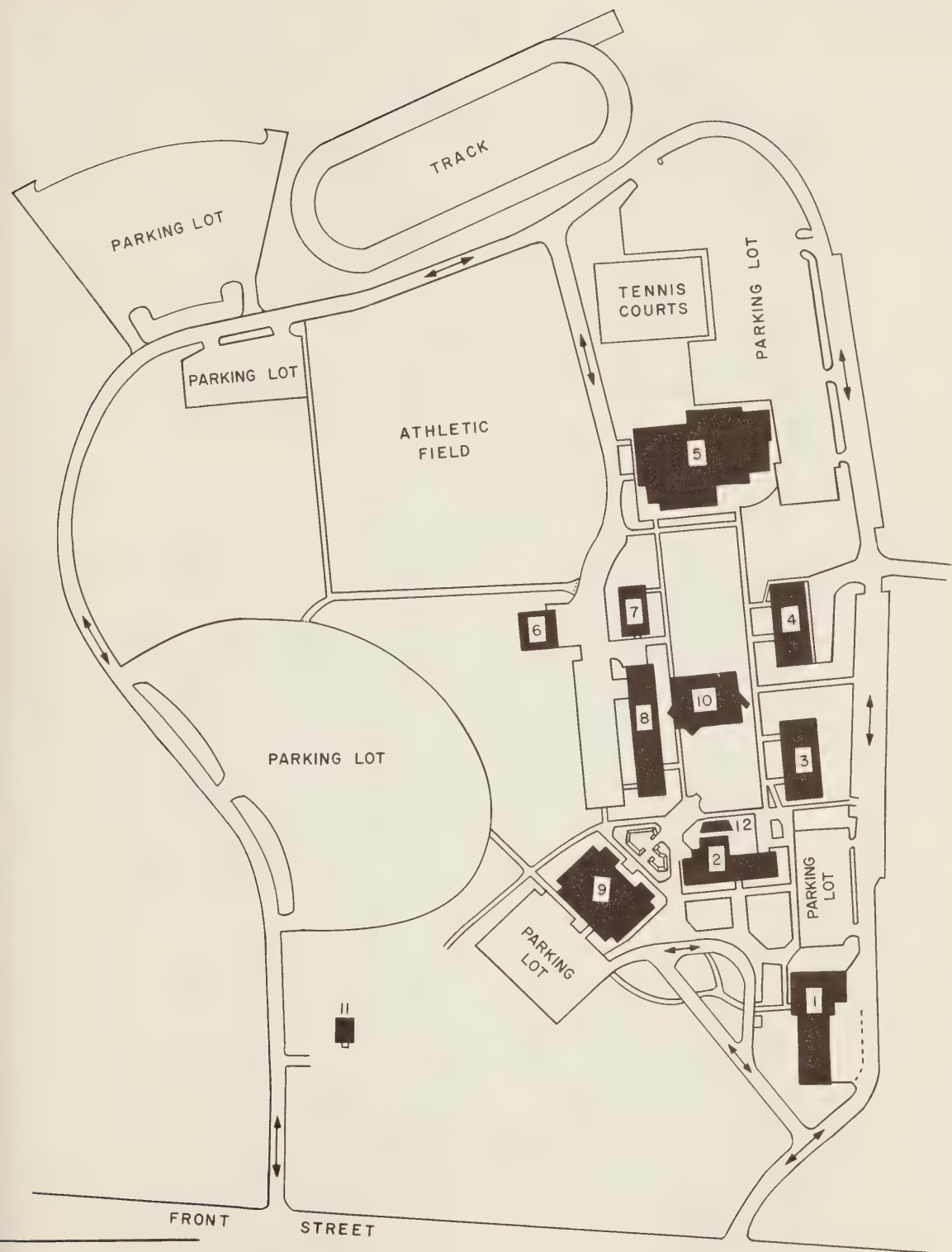
Tompkins-Cortland Community
College
Groton

Ulster County Community College
Stone Ridge

Westchester Community College
Valhalla

MAP OF THE CAMPUS

- 1. TITCHENER HALL**
Engineering Science
Liberal Arts
Audio-Visual Center
Nuclear Physics Laboratory
Student Lounge
- 2. ADMINISTRATION BUILDING**
Administrative Offices
Admissions Office
Computing Center
Student Personal Office
- 3. SCIENCE BUILDING**
Chemical Technology
Dental Hygiene
- 4. ELECTRICAL BUILDING**
Electrical Technology
- 5. STUDENT CENTER**
Bookstore
Cafeteria
Gymnasium
Little Theater
Student Lounge
- 6. MAINTENANCE BUILDING**
- 7. TEMPORARY BUILDING**
Classrooms
- 8. MECHANICAL BUILDING**
Civil Technology
Mechanical Technology
Faculty Offices including
Environmental Health Technology,
Medical Laboratory Technology,
Liberal Arts and Business
- 9. THE LIBRARY**
Health Service Office
Student Lounge
Department Offices
Medical Laboratory Technology
Medical Office Assistant
Medical Record Technology
Nursing
X-Ray Technology
- 10. BUSINESS BUILDING**
Administrative Management Dept.
Secretarial Sciences Dept.
- 11. FACULTY OFFICES**
- 12. COUNSELING CENTER**



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CALENDAR 1972-73

SUMMER TERM 1972

June 12		Classes begin
June 23		Last day to drop courses without grade
July 4		Independence Day recess
July 24		Last day to drop courses with "W" grade
Aug. 21		Last day of classes
Aug. 22		Make-up day
Aug. 23, 24, 25		Examinations
Aug. 30		Final grades due

FALL TERM 1972

Sept 13	7:40 a.m.	Classes begin
Sept. 26		Last day to drop courses without grade
Oct. 19	8.00 a.m.	Mid-term grades due
Nov. 1-14		WP or WF grades issued
Nov. 21		Last day of classes
Nov. 22-26		Thanksgiving recess
Nov. 27, 28		Examinations
Nov. 29		Study day
Nov. 30, Dec. 1		Examinations
Dec. 5	8:00 a.m.	Final grades due

WINTER TERM 1972-73

Dec. 11	7:40 a.m.	Classes begin
Dec. 22		Last day of classes prior to Christmas recess
Dec. 22		Last day to drop courses without grade
Jan. 8, 1973	7:40 a.m.	Classes resume
Jan. 29	8:00 a.m.	Mid-term grades due
Feb. 12-23		WP or WF grades issued
March 5, 6		Examinations
March 7		Study day
March 8, 9		Examinations
March 13	8:00 a.m.	Final grades due

SPRING TERM 1973

March 19	7:40 a.m.	Classes begin
March 30		Last day to drop courses without grade
April 23	8:00 a.m.	Mid-term grades due
April 30-May 11		WP or WF grades issued
May 25		Last day of classes
May 28		Memorial Day recess
May 29, 30		Examinations
May 31		Study day
June 1, 2		Examinations
June 5	8:00 a.m.	Final grades due
June 8		Graduation

SUMMER TERM 1973

June 11		Classes begin
June 22		Last day to drop courses without grade
July 4		Independence Day recess
July 17	8:00 a.m.	Mid-term grades due
July 31-Aug. 13		WP or WF grades issued
Aug. 20		Last day of classes
Aug. 21, 22, 23		Examinations
Aug. 27	8:00 a.m.	Final grades due

